



Monitoring Times

A Publication Of
Grove Enterprises

The *Monitor's*
Maine
Voice of Reason:
WCSN

White Wings of
Glory

MONITORING THE COLUMBUS
QUINCENTENNIAL

International
Organizations on
Shortwave

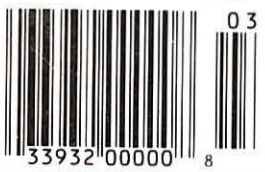
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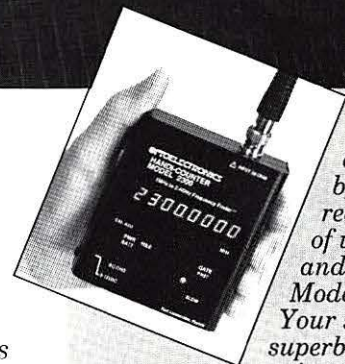
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Ron Bruckman
Radio Monitors Newsletter
Of Maryland

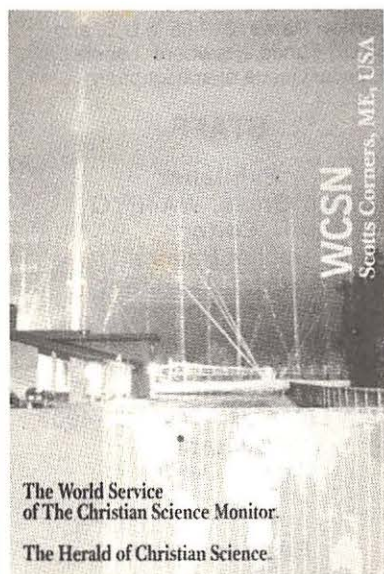
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Display	10 Digit LCD w/Function Annunciators	10 Digit LCD w/Function Annunciators	10 Digit LCD	10 Digit LCD	10 Digit LCD	8 Digit LED	8 Digit LED
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A Publication Of
Grove Enterprises

Monitoring Times



The World Service
of The Christian Science Monitor.
The Herald of Christian Science.

A Visit to WCSN

by David Lewis

8

On a wintry day in Maine, we visit one of shortwave broadcasting's most modern stations—the *Christian Science Monitor's* transmitter site in Scotts Corner. On a warmer day, sister station WSHB in Cypress Creek, South Carolina, also beckoned to John Carson for photo-taking. These state-of-the-art transmitter sites broadcast the *Monitor's* quality news and reach the “global village” with the message of Christian Science.

White Wings of Glory

by Everett Slosman

14

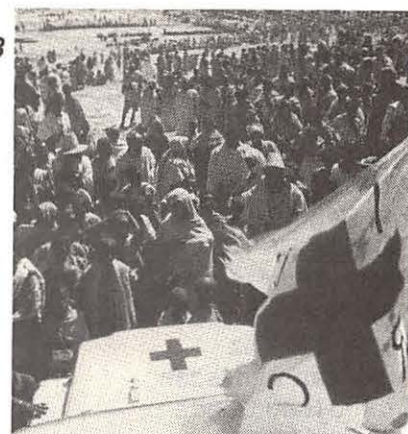
The five-hundredth anniversary of Columbus' journey to the New World had almost as much trouble getting off the ground as he did. But now the celebrations are well under way. From the Gran Regatta '92, beginning in Europe in a few weeks, to the Caravel tour, which is already underway on the east coast and moves to the west coast in the fall, there should be enough activity to interest monitors of all persuasions.

Many Nations, Many Stations

by Jeff Chanowitz

18

The United Nations, The Organization of American States and the International Red Cross are three international bodies which air programming via shortwave radio. If you catch their uniquely international broadcasts, they'll also QSL.



Cover Photo: The WCSN antenna towers in Scotts Corners, Maine.
Photo by David Lewis.

On the Trail of Power Line Noise

by Wayne Heinen

22

What kind of noise annoys an operator? There is probably no greater nuisance than man-made electrical interference. Tracking down its source can be tricky, and may ultimately require help from the power company and the cooperation of the entire neighborhood!

Terri Schultz

Profile of a Broadcaster

26

Where does a young, ambitious radio journalist acquire the experience necessary to gain recognition? Terry Schultz found it by starting out at Radio Finland. The transition was not always easy, but the crash course was worth it for this up-and-coming radio and TV reporter.

And Much More ...

As the post-Communist world continues in flux, we find utility and broadcast transmitter sites acquiring new owners and some broadcasts being shut down entirely, such as the TASS RTTY news service based in Cuba. "Utility World" breaks the known transmitter sites in the old Soviet Union into their new republics.

CIAO is a North American broadcast station which has found a niche as "the voice of the old country" for a number of nationalities within earshot of its Newfoundland base. Pay it a visit in "American Bandscan."

Computer control of receivers is a specialty of Datametrics, Inc. "Computers & Radios" takes a look at its sophisticated program for controlling the ICOM HF receivers, while "Experimenters Workshop" compares the scanner version (for use with the PRO-2005/6) with a kit by RW Systems.

If the sight of a schematic has always caused you to turn to the next article, tremble no longer! Uncle Skip explains those puzzling squiggles and alpha-numerical call-outs in his "Beginner's Corner."

There's much more in the pages of *MT*, including our easier-than-ever-to-use Shortwave Guide. So go to it!

DEPARTMENTS

Letters	3	QSL Corner	61
Communications	6	Outer Limits	62
Shortwave Broadcasting	28	Shortwave Guide	64
Utility World	32	Magne Tests...	94
The Scanning Report	36	Scanner Equipment	96
What's New?	40	DeMaw's Workbench	98
The Beginner's Corner	44	Experimenter's Workshop	100
Satellite TV	46	Antenna Topics	102
Federal File	48	Computers & Radio	104
High Seas	50	Ask Bob	106
Below 500 kHz	52	Club Circuit	108
American Bandscan	54	Special Events Calendar	109
On the Ham Bands	58	DX Radio Tests	110
Reading RTTY	60	Stock Exchange	110



MONITORING TIMES (ISSN: 0889-5341) is published monthly by Grove Enterprises, Inc., Brasstown, NC, USA.

Address: P. O. Box 98, 140 Dog Branch Road, Brasstown, NC 28902-0098

Telephone: (704) 837-9200

FAX: (704) 837-2216 (24 hrs)

Subscription Rates: \$19.95 in U.S. and \$28.50 US Funds elsewhere; Label indicates last issue of subscription

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Correspondence to columnists should be mailed c/o Monitoring Times. Any request for a personal reply should be accompanied by an SASE.

Second class postage paid at Brasstown, NC, and additional mailing offices.

POSTMASTER: Send address changes to Monitoring Times, Post Office Box 98, Brasstown, NC 28902-0098.

LETTERS

Did you notice our updated "Monitoring Times" logo last month? As *MT* moves into its second decade it seemed an appropriate time to modernize our image. We'll try not to throw the baby out with the bath water, though. "A journey into the future with steps from the past," is our slogan as we plan for our third MT Convention. We're looking forward to its new site, by the way. 1992 will find Monitoring Times squarely in the heart of the action at the Omni, home of Atlanta, Georgia's CNN Center.

One innovation by *MT* which has met with enthusiastic response is the "Club Circuit" page. Peter Warncke of Vallejo, California, says he's already applied to one of the listed clubs. Ron Bruckman of Hampstead, Maryland, speaking as editor of one of the club publications, sends his thanks on behalf of the radio community for the service.

Ron adds, "I've been a faithful subscriber of *MT* for many years; it's very useful in keeping me up-to-date on frequencies and happenings around the radio community."

Thanks, Ron. The Club Circuit page does seem to be an idea whose time has come, but we already see it bursting its seams. This is one service that will continue to evolve as we discover what is most useful to clubs and to our readers.

Many of you have been bragging on *MT* lately, so maybe this is as good a time as any to print some of your comments. Larry Gold of El Paso, Texas, likes the philosophy expressed by Bob Grove: "When advertisers begin to compete for space, we simply 'ad' more pages." Says, Larry, "Now that's the way to run a magazine. Everybody wins!"

Jon Rudisill of Cherryville, NC, especially likes "the scanner article space that your magazine gives, as I am an avid scanner listener." Jon is police dispatcher for the Cherryville PD, and prior to that was a paramedic/firefighter. "But to tell the truth about it," says Jon, "it was scanner listening that got me interested in the public safety career, as I have been listening to scanners since about age eight, and was an SWL before that."

Thanks to *MT*, says Cathy Turner of Yonkers, NY, "I've learned to expand from just shortwave broadcast stations to utilities and more." She and her husband communicate with international concert artists in their business, and she finds that "knowing what is going on in their home country ... gives us the edge in business!" More from Cathy in a minute.

Another person who says "the shortwave frequency listing keeps getting better" is Mike Westdal of Sacramento, CA. Mike, I hope you'll like this month's improvements: Since



Long-time Canadian subscriber Ronald Tull sent in this photo of his listening post.

stations are alphabetized within the hour, we've made some changes intended to make station listings easier to find—dropping the word "Radio," for example. Now such stations as Radio Australia will appear under the "A's" instead of the "R's."

Mike says his *MT*s become "dog-eared" from use; it's no wonder, since Mike is a broad-spectrum listener. He listens to AM/FM during his 90-mile daily commute, he uses a Motorola hand-held and police radio in his job as field evidence technician for the Stockton PD, and at home he listens to shortwave.

Gerald Brookman of Kenai, Alaska, likes the level at which *MT* addresses its readers—somewhere between elementary and expert. He did have one question for "Outer Limits," however. It recommended the new program, *Signals*, carried by WWCR on 7435 kHz, but on what day? Check out Hauser's column this month, Gerald. You'll find an updated answer to that on page 30.

"*MT* helps keep me up to date on happenings I might otherwise overlook. Thanks," says licensed ham Allen Newton of Whitney, TX.

And finally, from Joe Kubasha of Kirtland, OH, "*MT* is by far the best in its field and the information it contains makes my scanning and shortwave hobby much more enjoyable."

Thanks to you all for the kind words of encouragement.

We're happy to share some good news in the sphere of radio regulations. First is the repeal of New Jersey's repressive "scanner law," as addressed in Bob's "Closing Comments" this month. The ARRL's New Jersey section manager, Rich Moseson, NW2L, recommends that folks traveling in New Jersey who carry a receiver capable of receiving police, fire or emergency communications should also carry a copy of the new scanner law text. "It may take a while before word of the new law reaches all police officers," he warns.

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LETTERS

In last month's "Letters" we told you of the obnoxious tone used by the Lake County, Ohio, emergency radio network to "test" the system. The tone had the incidental side effect of jamming the transmissions for any unauthorized receivers.

Well, the testing is a thing of the past. In a fight led by Willoughby Police and Fire Chief William Crosier, who argued for the public's open access to the radio system, the practice was overturned by a margin of one vote. According to an editorial in the *Lake County News-Herald*, Crosier was quoted as saying, "We have a network of people who have very legitimate uses for the scanners. The extra eyes and ears are very valuable to us."

The editor, who chose this as the Quote of the Week, adds, "We need a lot more of this kind of standing up to the vagaries of bureaucratic lunacy."

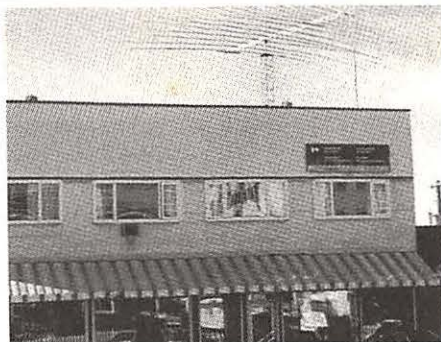
Our hats are off to both Chief Crosier and to the editor of the *News-Herald* for actively defending the public's freedom of information. Now it's your turn; have you written your Congressperson yet urging rejection of Section 9 of the FCC Funding Bill?

Ready for a few lighter anecdotes? While shopping for a new scanner recently, Tom Lewis of Keller, Texas, picked up a Realistic PRO-37 box marked down as a returned item. Upon opening the box, a letter fell out: "Thank you for the use of this receiver for review purposes ... *Bob Grove*!" Realizing that this was the very receiver used for Bob's December equipment review, Tom of course bought it on the spot!

- "During my Christmas shopping, I had a good laugh at a local Radio Shack," says Cathy Turner of Yonkers. "While checking out the scanners and SW radios, I happened to notice a poster on the wall. It showed a kid and his dad with a DX440. The kid had earphones on and the dad looked pleased that his brat had his nose out of the Nintendo. (Well, that's how I saw it.) This happy pair was checking out an atlas. The frequency shown on the DX440 was FM."

"I gave my husband a jab in the ribs and said 'What's wrong with this picture?' He laughed, too. The manager wanted to know what was so funny. I told him if the kid was listening to that frequency, he wouldn't need an atlas. I explained to him that any shortwave listener would spot the blooper and have a good laugh. Has anyone else seen that poster?"

- Stan Mayo of Winslow, Maine, has an example of untimely interference, reminiscent of the fast food fiascos. "A funeral parlor in Norway, Maine, was holding services using a Zenith stereo for background music at low volume, when suddenly a loud voice was heard during the eulogy, 'I HEAR YOU LOUD AND CLEAR.' Seems a CBer was parked in front of the building using the rig in his car. The group



Ron Tull of Whitehorse, Canada, whose radio set-up is shown on page 3, also sent along this picture of the Department of Communication office in Whitehorse, Yukon, Canada.

was really taken aback by this incident but the undertaker was not. A couple of small capacitors across the cartridge input leads to the preamp took care of things."

Now for some more miscellaneous helps, hints and tidbits from our readers:

- Was it a coincidence that the *Boston Globe* printed an article on Radio Finland's Latin service a week after *MT* told how to find it? Several readers sent in the clipping, including Ross Comeau of Andover and Dawson Heron of Cambridge. Matti Huuhtanen, the article's author, focused on the unique difficulties of reporting the news in Latin and finding Latin expressions for new concepts, such as "Space Shuttle."
- Remember our ill-fated wheel for converting local time and UTC? Edward Ketcham, Jr. of Kihei, Hawaii, suggests that "if the intent is to cover the U.S. it would be appropriate to add Hawaiian Standard Time by entering 'H' at 2pm on the circular diagram." Ed Michelman of Honolulu concurred.

If you want to know more about time, Ed recommends the "Time and Frequency User's Manual," National Bureau of Standards Special Publication #559. Ed is a member of the Coast Guard Auxiliary which backs up the CG "Rainbow Net." In military time, where "Zulu" represents UTC, Hawaii is in the "W" zone—"happily known as 'Whiskey Time'," says Ed.

Another maritime operator, Charles Brown of Groves, Texas, doesn't understand what all the fuss is about. He says (and he's right, of course) you can figure UTC using the following conversion:

Converting Local Time to UTC

Time Zone:	Add:	Daylight Time;	
AST (Atlantic)	+4	ADT	+3
EST	+5	EDT	+4
CST	+6	CDT	+5
MST	+7	MDT	+6
PST	+8	PDT	+7
HST (Hawaiian)	+10	HDT	+9

"You dunderheads can now throw away your charts and wheels—just remember the plus zone you are in!" says Charles.

- A couple of months ago a reader warned that APO addresses were being changed. Rene Valladares, APO AE, easily obtained the new "Military Oversea Zip Code Directory" from the postmaster on his station. He reports that it is somewhat confusing, but "it is not half as confused and misdirected as U.S. military mail." Rene certainly is in a position to know!

Jerry Meredith of Mooresville, NC, is grateful for the article on DXing Antarctica, though he doesn't yet have RTTY or FAX capability. "I've still been able to add Antarctica to my list of continents monitored, thanks to KC4AAA, located at the U.S. station at the South Pole. I've heard him often working 20 meters in the evenings, running phone patches into the U.S. If you hear a call 'KayCeeFourTripleAlpha,' you've got him."

"Although the base station is usually pretty busy, sometimes they'll talk about what it's like working at the South Pole, like the time I heard the operator discuss a softball game played there in balmy -20 degree temperatures."

"I've also logged the Argentine broadcast station, Radio Nacional, at Esperanza Base on 15474 kHz at 2230 UTC. The signal here was weak, but the ID was clearly readable... Thanks again for all the information in *Monitoring Times*."

Do you ever wonder if anyone really builds those homebrew projects in *MT*'s back pages? Doug DeMaw recently forwarded a letter to us from Scott Billingsley of Camden, AR, who was not only inspired to build the regenerative receiver in January's issue, but wrote Doug of his experiences.

Scott says, "Although my circuit is not the same as yours, I find it works very well. Instead of a 1k ohm audio transformer, I used a 950 ohm filter which I had purchased from Radio Shack. I also used a 5k pot instead of 1k and it still worked rather well."

"Due to my set-up and the padding cap I put in line I have very limited range but very good reception and almost no interference even with a high power station at 910 kHz locally."

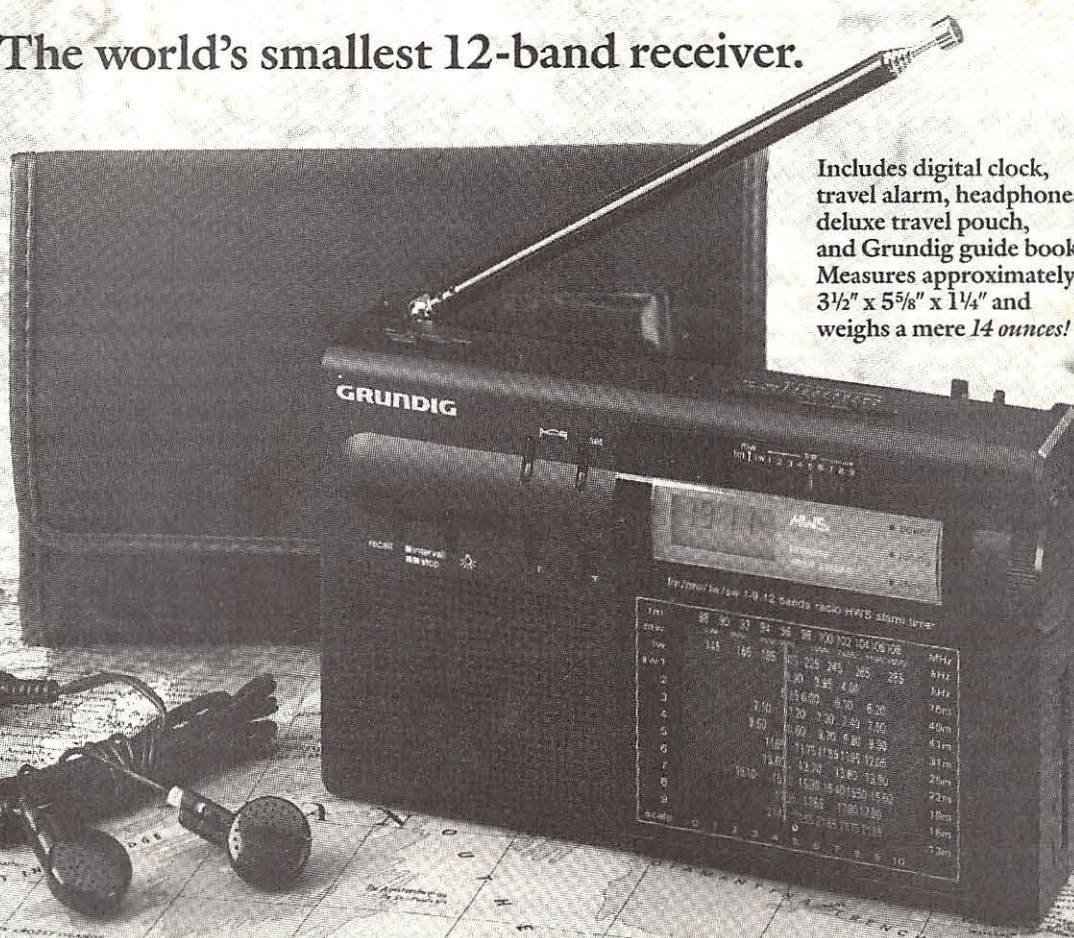
Whenever you try out an *MT* project, drop the author a note and let him know how it went. Columnists appreciate the feedback and can use your experience to fine-tune the project for others.

April will find us tuned in to the NOAA weather watchers as they report on severe weather conditions and spot tornadoes. So join us again as spring brings new receivers to review, new frequencies to punch in, and more good monitoring times.

Rachel Baughn,
Editor

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The Tulu the Raven Show

Canada's Northwest Territories is an area of ice and snow, polar bears, arctic wolves, seals — and couch potatoes.

For the past 15 or 20 years, the Eskimos (also known as the Inuit), have been fed a steady stream of U.S.-produced television delicacies like Detroit's homicide-laden "Action News." So powerful was the pull of



the flickering screen that, according to Meeka Kilabuk, director of the Baffin Regional Council, it became routine for Inuit families to "eat dinner, wash up, and watch Sesame Street together," even though the program, set in an inner city neighborhood, was in a language most did not understand.

Now, live from the Arctic metropolis of Iqaluit (population 3,500), comes Television Northern Canada (TVNC). Instead of Miss Piggy and Kermit the frog, children from Yukon to Labrador — who have never seen a pig or a frog — will watch Johnny the Lemming and Tulu the Raven.

"Now," says TVNC chairman Pat Lyall, "you are going to see programs about the north in your own language."

TVNC's kickoff last month featured a three hour live broadcast featuring the best in northern entertainment — contemporary singers Charlie Panigoniak and Susan Aglukark, the Inuktitut band Uvagut and traditional throat singers from Baffin Island. TVNC is scheduled to broadcast 12 hours a day, seven days a week.

The Electronic Wall Falls

In a move which surprised many, the Soviet TASS (Telegrafnoie Agentstwo Sowjetskojo Sojusa) press association has permanently discontinued all shortwave radioteletype broadcasts.

In a telephone interview from his office in Moscow, Vadim Polyakov, the Deputy Chief of the TASS English Service, stated, "As from January 1, 1992 all TASS radio broadcasts in all languages have been discontinued. There are no plans to revive any radio broadcasts in the future."

The move by TASS surprised utility monitors and TASS North American staff alike. Vladimir Prosvetkov, chief TASS engineer for North America, stated, "I have no knowledge of this."

The permanence of the TASS move was punctuated by the recall of the TASS Radio service engineering staff. Both of the full-time engineers on the staff were recalled back to Moscow, according to a staff reporter in their Havana, Cuba, bureau. The last technician left Cuba on 9 January 1992.

According to Polyakov, the only way to receive the TASS news service is via satellite link.

Sporting Radio I: Dead Deer

According to radio personality Rush Limbaugh, people in Montana are avid scanner listeners — but not for the same reason as most people. In the Big Sky state, everyone listens to hear when someone hits a deer with their car. Then they go and pick it up before the rangers get there.

Prior to the advent of dead deer scanning, the deceased animals were picked up by the Forest Department and given to the needy.

Sporting Radio II: Radio Controlled Archery

You're out in the woods tracking elk. And there, in heavy cover, you can make out the silhouette of a giant bull! You pull one of your best arrows from your quiver, put it in the bow, draw back and... release. Unfortunately, the arrow careens of a small sapling and heads off into the woods.

Now, thanks to the ETS Corporation, that arrow doesn't have to be lost forever. "Beacon" is a small, lithium-powered transmitter that inserts into the shaft of the arrow. If the arrow is lost, all you do is pull out your direction-finder. If the arrow is within 300 yards, a beeping tone and lighted signal strength meter on the receiver will tell you when you're heading in the right direction.

Of course, had you hit the elk, the transmitter has a different purpose.

All India Radio Official Escapes

An official of All India Radio in Kashmir escaped from his Muslim militant captors after being held for two weeks. The Lashkari Azam or "Great Army," had said that they would hold Bashir Arif, until the government allowed Amnesty International to visit the Kashmir Valley to investigate allegations of human rights abuses by Indian security forces. The militants are fighting to separate Kashmir from India. Two other

kidnap victims managed to escape this year. Eight people remain in captivity.

Hostages Listen to BBC

Former hostage Terry Waite was quoted as saying, "...the [BBC] World Service helped keep us alive..." Thomas Sutherland, another hostage, said "I would guess that if one took a bunch of money... and said to a director: 'Put together the best kind of international radio you could devise,' I think you would come up with something like the BBC."

Both of these quotes were part of a recent advertisement placed by the BBC World Service in the *Wall Street Journal*.

Pigs Listen to BBC

Pigs on a British farm are keeping up with the news by listening to BBC World Service broadcasts. Farmer Derek Allen in Rampisham, southwest England, told newspapers recently that the tin roof of his pig's sty acts as a receiver that picks up signals from a nearby BBC transmitter.

"I'm sure my pigs know more about what's going on than I do," Allen said.

Drug Repellant

"A bunch of us tried to figure out how to curb loitering and drug dealing outside our stores," said Rocky Ford, manager of a hoagy sandwich shop in Washington state. "We thought of using high-intensity halogen lights — you know, the type that make people look awful — and using garbage cans with pointed lids."

The answer, it turns out, was neither lighting nor lids. When Ford and his friends decided to broadcast so-called "elevator music" outside their stores, the easy-listening music had the same effect on drug-dealing youths as "a cross held in front of Dracula."

Said one teen, "It's hard to be cool when violins are playing in the background."

Goodbye Longwave

Sweden's oldest radio station, Stockholm Motala, has gone off the air. The longwave station first went on the air in 1927 with 30 kilowatts of power. It was last heard on 189 kHz with 300 kW. According to Swedish Telecom, the cost per listener for longwave had become too great.

COMMUNICATIONS

Don Knotts and Tiananmen Square

According to syndicated columnist Jack Anderson, the popularity of the Voice of America in China has soared since the Tiananmen Square massacre. When the shooting began and the tanks rolled, relates Anderson, Chinese government television was broadcasting a Walt Disney movie about a talking fish, "The Incredible Mr. Limpet," starring Don Knotts. At the same time, he says, the VOA was telling the Chinese of the massacre taking place in the capital.

Someone is Listening

The most recent edition of the Lincoln, Nebraska, telephone book contains an interesting "advertisement." The parent company, LT&T, which is active in the establishment of the Nebraska Cellular Network, has printed a disclaimer concerning the privacy of cellular communications.

The piece seems to be primarily the work of a company lawyer — it begins by saying that the telephone company "shall not be liable for any special, incidental or consequential damages, or for commercial loss of any kind...resulting from the existence of a cellular mobile radio unit."

The warning goes on to state that "Cellular, cordless and mobile phones use radio frequencies which may be overheard." We congratulate LT&T for their honesty.

Doyel Sentenced

One-time federal fugitive Michael Doyel was sentenced to 45 months in prison for a wide variety of crimes. Many included the use (or abuse) of radio. Among them:

The 31-year-old Cedar Rapids, Iowa, man was convicted of operating a mail-order business that offered radio equipment for sale but which never sent out the merchandise. Said Doyel, they were too busy cashing checks to worry about anything else.

Doyel was also convicted of broadcasting obscene language after rigging a radio to transmit on the frequency of a local McDonald's drive-through window. As cars would drive up, Doyel would broadcast an obscene message.

Finally, Doyel was convicted of airing a false report on Iowa State Patrol frequencies that an officer had wrecked his car and was seriously injured. Doyel was originally supposed to appear for arraignment in April of

Have you written your senator yet regarding the proposed ban on the manufacture of receivers capable of receiving cellular frequencies?

This insidious legislation is contained in Section 9 of the FCC Funding Bill. Don't write later; write now!

1990. When found by police, he was reportedly wearing women's clothing.

Doyel characterized his radio crimes as "pranks," saying that he grew up as a fan of the TV cop show, "CHiPS." He always liked the way the California Highway Patrol officers used their radios on the show, he said.

Schoenbohm Charged

Two Virgin Island newspapers are reporting that St. Croix amateur radio operator Herb Schoenbohm, KV4FZ, has been indicted on federal charges that he used counterfeit and unauthorized telephone access devices to make more than \$1,000 worth of long-distance calls in 1987.

According to the report, Schoenbohm, Chief of Communications for the Virgin Island police department, was ordered to turn in his badge, ID, radio, and department vehicle.

Schoenbohm, a controversial figure some call the "hero of hurricane Hugo," has been accused by some of intentionally jamming a 20 meter net with obscenities. Ironically, his purported objection is to amateurs who use the net to avoid telephone toll calls! Schoenbohm is the founder of the Better Amateur Radio Federation (BARF).

No-Fee License

The FCC has proposed a fee-less radio telephone operators license for personnel who work at non-commercial stations. In order to qualify, the applicant must file FCC form 703 and send a signed certification stating that the license will only be used at a non-commercial station. Regular radio operator permits still cost \$5.00.

Thanks and credit to: BBC World Broadcast Information; Harry Baughn, Brasstown, NC; Todd Dokey, Lodi, CA; Joe Eisenberg, Lincoln, NE; Howard Lash, Lynwood, IL; Hugh Miller, Woodinville, WA; *Radio World*; Billy Tuchabeamrun, Iqaluit, Northern Territories; Chuck Yarbrough, *SPEEDX* Utility World; *WSYI Report*, and others.

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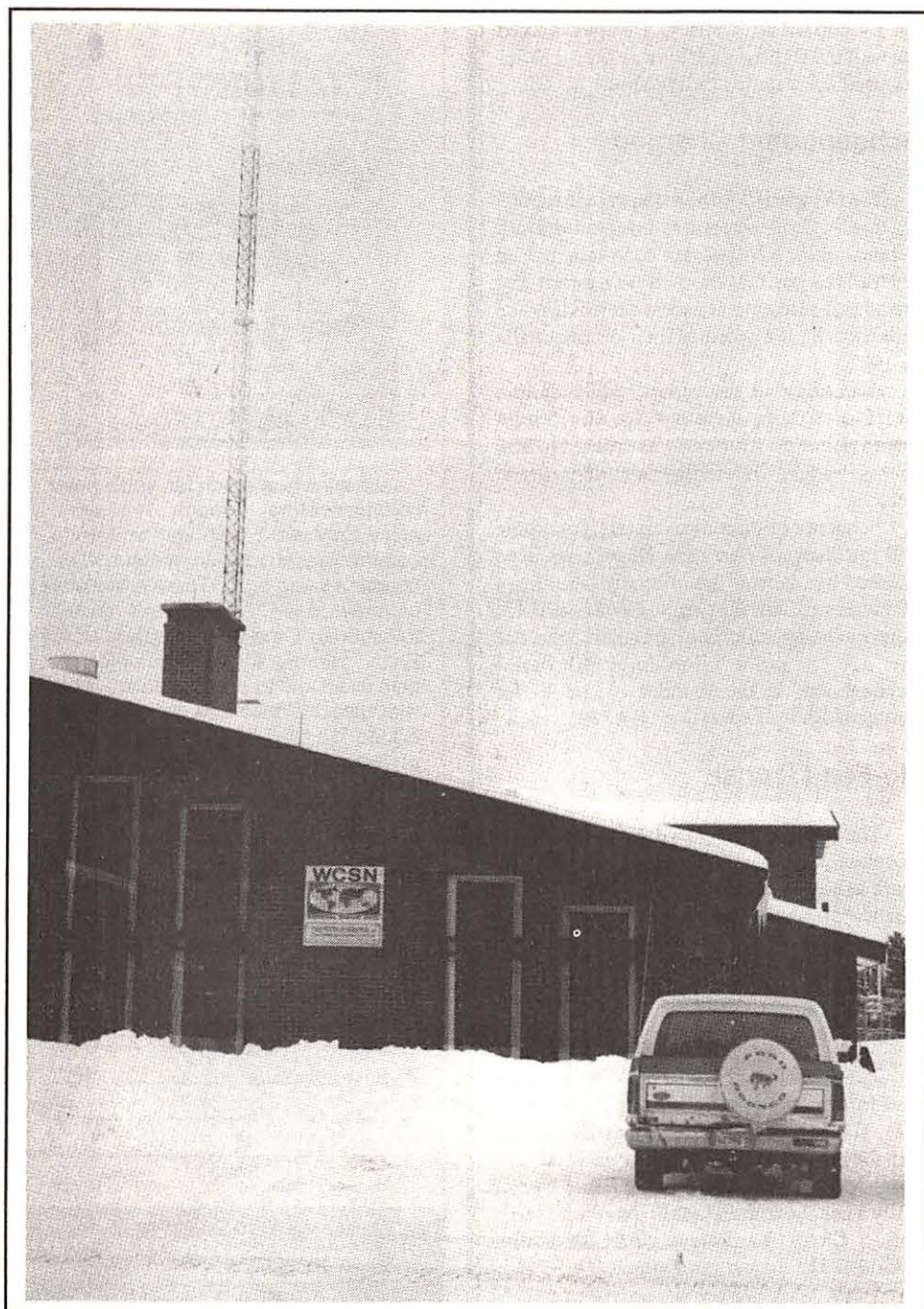
WCSN & WSHB:

Broadcasting "To Satisfy the Intellect"

A Visit to WCSN



By David Lewis



Driving along on a cold, gray, Maine winter day, I spotted the electrical substation that marked my turn off the main road. Ah—there was the small sign that said simply, "WCSN," with an arrow pointing to the right. High above the sign, arcing from pole to pole, were the massive power lines I'd been told to follow. I was looking for the transmitter site of one of the most powerful shortwave broadcasters on earth: the World Service of the Christian Science Monitor at Scott's Corners, Maine.

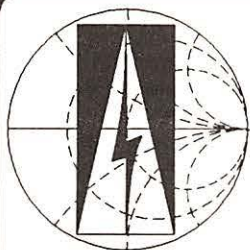
I pulled into the parking lot, taking in the sight of a ordinary brick building which could easily have passed for a small-town elementary school. As I opened my eyes wider against the snowy glare, suddenly everything—trees, building, cars, parking lot—was dwarfed by the three huge red towers standing behind the building, connected by thousands of feet of interlaced wires, which now framed the entire scene.

As I gathered notebook and camera and prepared to enter this powerhouse of world band radio, I thought back to my first acquaintance with their signal.

One of the first times I listened to WCSN, I'd happened upon a strong carrier about five minutes before their daily sign-on to a new frequency. I heard their haunting interval signal (shown above), electronically synthesized but sounding very much like a French Horn. It is repeated several times until the top of the hour, when it continues but is joined by other synthesized instruments to form a unique, rhythmic musical theme as background to the broadcast's opening announcement. Composed by Denny Jaeger, this theme was commissioned by the World Service to be "a call to the world ... employing sounds and instruments with which any culture could identify itself."

Following station ID, WCSN airs a brief but comprehensive world newscast, then a series of features and news stories reported from around the world. The last half hour of each two-hour broadcast consists of the popular "Letterbox" program followed by a spiritual message.

David Lewis



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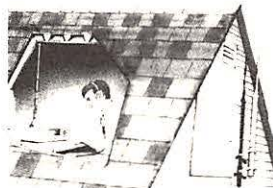
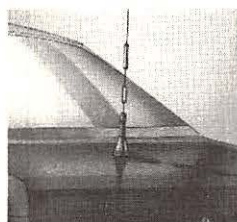
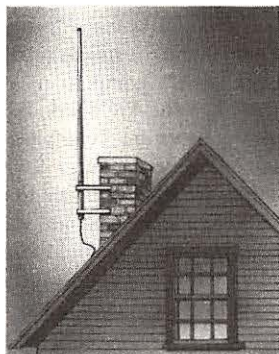
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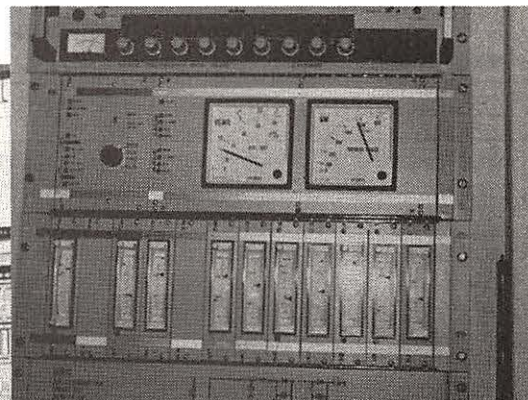
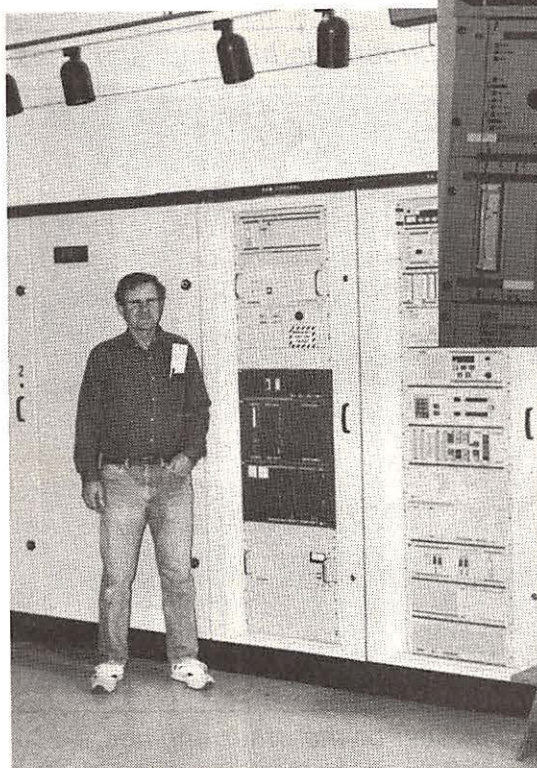
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The World Service—which supports the same philosophy as *The Christian Science Monitor* newspaper—"seeks to provide, as a global public service, a source of truthful, unbiased, thorough, balanced news to satisfy the intellect rather than stimulating a set of emotions," according to Don Feldheim, Director of Public Relations.

Inside WCSN

Walking in the front door, I was met by Bunker Herbest, an engineer at WCSN. He led me in to meet Senior Maintenance Engineer Bruce Clark, with whom I'd arranged this visit. Bruce showed me the entire facility and described its operation with a thoroughness impossible to reproduce here. I will cover some of the main points, however, starting with the transmitter itself.

WCSN uses a single transmitter, which is capable of transmitting on frequencies in the 9, 13, 15, and 21 MHz bands. This elaborate system is manufactured by the Aesa Brown Bovari company in Turgi, Switzerland. Many international broadcasters use this same model transmitter, which has a carrier output of five hundred thousand watts. The final amplifier stage uses a single water-cooled tube which stands four feet tall.



Transmitter control panel with Bruce Clark. Inset: Close-up of the control panel gives proof of the 500-watt output. Photos by David Lewis

The water cooling system is a complex design; due to the extremely high current and voltage present in the tube, the water must be absolutely free of trace metals and other conductive material. So a purification plant is part of this cooling system, which passes the pure water through a heat exchanger that transfers heat to a radiator outdoors via pipes filled with anti-freeze.

A striking characteristic of the WCSN signal is its fine audio quality, providing speech and music reproduction to rival any found on the world bands. Bruce described the "pulse-step modulation" system which is employed and we

monitored this audio with a meter on the main transmitter control panel. On this same panel we confirmed that the transmitter was indeed putting out a half-million watts.

It takes more than a powerful transmitter to produce a signal as strong as WCSN'S. The giant antenna system I'd seen on the way in is the other half of the equation. This "broadband curtain array" was designed and constructed by Technology For Communications of Mountain View, California. Using no moving parts, the antenna is electronically "sleuable" to focus the signal, in 15 degree increments, through compass head-

ings of 45 to 105 degrees (northeast through west-southwest), providing strong signal coverage of Europe, Western Russia, and Africa. By concentrating the signal in one direction at a time, an effective radiated power (ERP) of about a hundred times that of the actual transmitter output is achieved: 20 million watts!

The antenna takes up several acres of cleared field and requires continual inspection and maintenance. The snow was about three feet deep the day I visited. I was wondering how much of the antenna system I would be able to see up close until Bunker offered to drive me around it in the modern half-track snow vehicle which is used for winter maintenance. Riding along in the heated cab as he pointed out specific features of the antenna and feed system, it was clear that Maine's worst weather wasn't going to prevent these engineers from keeping WCSN on the air.

Back inside, Bruce and I completed the tour which included inspection of high- and low-pass filters used to prevent interference to other services, and of large coaxial switches which shunt RF power from the antenna feedline into a "dummy load" so that transmitter adjustments and calibrations can be made without putting a signal on the air. The striking thing about these pieces of equipment is their sheer size and weight. Everything is extra heavy-duty. The coaxial feedline is about a foot in diameter.

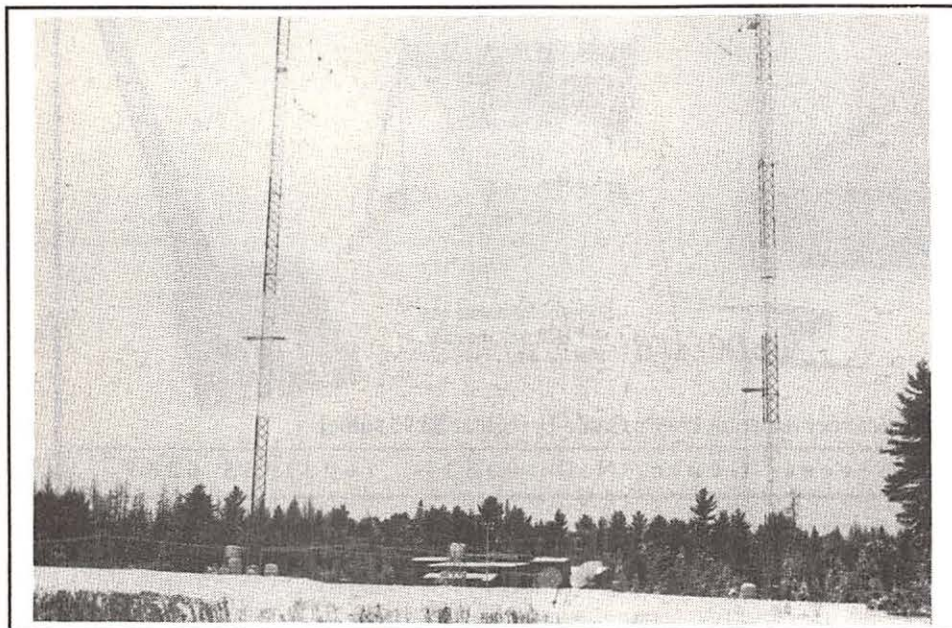
Indeed, my strongest impression of the entire operation is that everything is designed, built, and maintained to the highest industrial and professional standards, from the massive diesel back-up generator room to the specially shielded RF-proof electronics test and repair shop.

The last stop was the control room. Programming from the World Service's Boston studios is received by the satellite dish outside and processed here for broadcast worldwide. From the main control console I spoke by telephone with Mr. Feldheim in Boston regarding programming and any remaining questions.

The *Christian Science Monitor* operates two other shortwave stations in addition to WCSN; they are WSHB in Cypress Creek, South Carolina, which broadcasts to the western hemisphere, and KHBI in Saipan, Mariana Islands which reaches Asia and the Pacific. These three stations succeed in providing a truly global radio service for millions of listeners. I left Scott's Corners with the feeling that those big antenna towers are a major force helping to bring the people of the world closer together.



The author wishes to thank Engineers Bruce Clark, Bunker Herbest, and Station Manager Robert Stessel for their friendly cooperation; and Don Feldheim for public relations. Thanks also to John Carson, photographer, and Michael Batchelor of WSHB for the sidebar on page 12..



WCSN's antenna system dwarfs the surrounding buildings and trees.



Maine winters don't deter Bunker Herbest or the other engineers from winter maintenance with this half-track, heated snow vehicle.

All photos this page by David Lewis

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A Visit to Sister Station WSHB

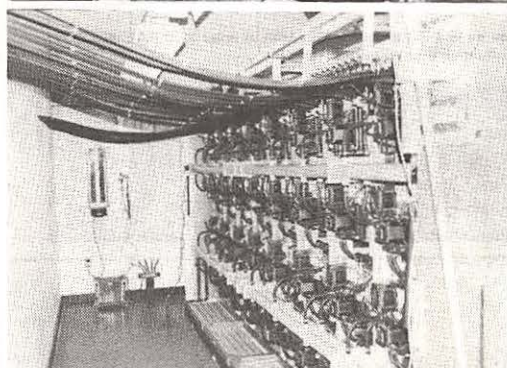
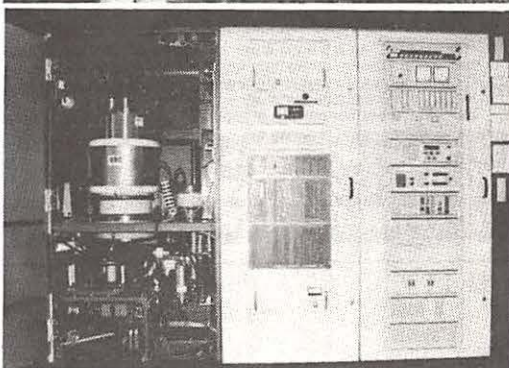
On a balmy day, John Carson, program monitor for *Monitoring Times*, visited the transmitter site for WSHB in Cypress Creek, South Carolina. The two Christian Science Monitor stations are so similar in equipment, some pictures could be interchangeable.

Some of the staff at WSHB (l to r): Mike Edwards, Mike Batchelor (a fixture at the MT Convention), Jerry Lopez, Tony Kobatake



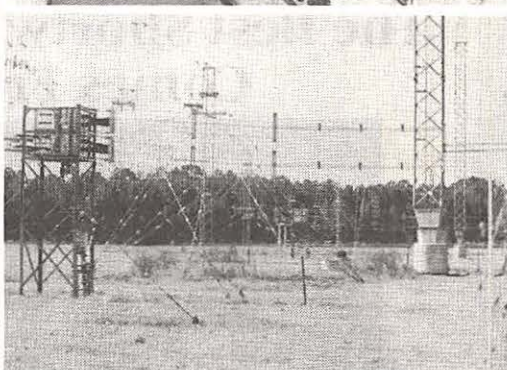
Jerry Lopez, a WSHB engineer, in front of the control room rack.

The main transmitter tube is a high-tech Aesa Brown Bovari



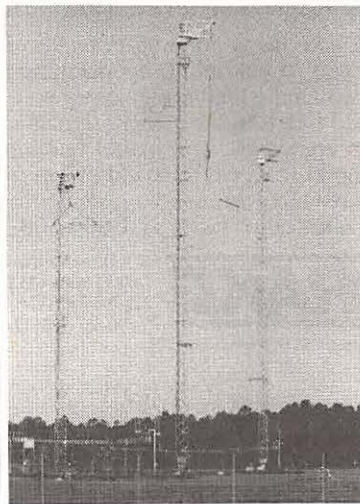
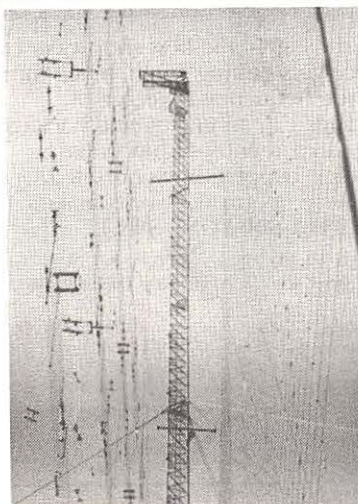
A sight few get to see—the interior of the pulse-step modulator.

Mike Edwards selects the antenna on the control room panel.



The "slewbox" can fine-tune the antenna to concentrate in one direction, magnifying the effective radiated power to that region of the world.

It's not often one sees this view of a curtain antenna (left) and its reflector (right).



Full view of antenna towers.

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RFD6 CA, NV, UT, AZ, HI, GU Frequency Directory	\$14.95
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TIC-B Techniques for Intercepting Communications	\$14.95
EEC-B Embassy & Espionage Communications	\$14.95
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SMHV2-B Scanner Modification Handbook/Volume 2	\$18.95
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White Wings of Glory

By Everett L. Slosman



Courtesy of Spain '92 Foundation

The *Santa Maria*, *Nina*, and *Pinta* at sea in the Mediterranean.

When the Spanish Discovery Ships sailed out of the rising sun, they seemed, to Native Americans, to fulfill an ancient prophecy. Ordinary seamen became bearded gods riding on white wings of glory who forever changed the course of events.

Most historians acknowledge Columbus was not the first European to reach these shores. But, he did establish the outposts of Spanish civilization and introduced rules that resulted in religious fanaticism, slavery and exploitation.

Five hundred years later, the world celebrates the Columbus Quincentenary. Festivals and elaborate events compete for media attention while controversy nibbles at the edges.

Some Native Americans call the celebrations racist, claiming Columbus committed genocide and remind a fun-loving world their heritage also deserves equal recognition. Supporters plan media-oriented disruptions to bolster their protests.

As did during the events of 500 years ago, internecine warfare erupted within and between various sponsoring organizations. Many executives displayed attributes ranging from absolute incompetence to trivial malfeasance. It looked like the Quincentenary would dissolve in a pool of petty jealousies.

However, the organizations did manage to shape up. Now, 21 communities, from San Juan, Puerto Rico, to San Diego, California, have planned events. Most center on Hispanic culture and its impact on America. Some far-sighted committees are trying to include Native Americans. The Quincentenary offers once-in-a-lifetime opportunities to monitor an international story on the maritime, police and public safety, local government, and news bands. There's something for every taste on the HF and VHF frequencies.

There are really two international events: the Quincentenary Celebration and the Grand Regatta.

The Quincentenary comes under *Sociedad Estatal Quinto Centenario (SEQC)*, the Spanish organization responsible for worldwide Columbian activities. In the US, *Spain '92 Foundation* acts as the coordinator.

No nautical commemoration can be complete without a race at sea. The *Gran Regata Colon '92* is sponsored by a Madrid, Spain, organization of the same name. Great Britain's Sail Training Association (STA) administers the technical aspects.

The Quincentenary Celebration revolves around three replicas of the Columbus caravels;

Santa Maria, *Pinta*, and *Nina*. Shipwrights built these wooden vessels for the Spanish government using 15th century techniques and materials.

Several organizations became involved. *SEQC* and the Spanish Navy appointed the Institute of Naval History and Culture to oversee the work. The Institute developed guidelines based on studies by Jose Maria Martinez Hidalgo, the director of Barcelona's Maritime Museum. A naval engineer, Captain Jose Luis Lopez Martinez, became project manager.

Barcelona's Astilleros Viudes shipyard laid *Santa Maria*'s keel; Astilleros Reunidos de Isla Cristina did *Pinta*'s and Arsenal Militar the *Nina*. The oak and pine timbers came from Galician and Pyrenees forests and carpenters used hand-forged nails crafted after a 16th century-pattern.

By 1989, the caravels, now called the Discovery Ships, went on sea trials. During the next two years, the vessels engaged in training exercises and Atlantic and Mediterranean seaport visits. On October 12, 1991, they put to sea from Huelva, Spain—a port close to Palos de la Frontera from which Columbus sailed.

They sailed to the Canary Islands, then moved on to San Salvador and Santo Domingo. Christmas and New Year's found them in San Juan taking part in Alexander Salkind's production *Christopher Columbus, the Movie*.

A word about the caravels' seaworthiness: Hulls, deadworks, and decks are all caulked with hemp. Twisted hemp provides standing and running rigging ropes. Only the sails substitute linen for the traditional canvass.

Anchors are cast steel and oak. The *Santa Maria* carries a 1420 pound foranese, two 1014 pound weighing, and two 102 pound spear anchors. Both *Pinta* and *Nina* have a 1014 pound foranese, two 710 pound weighing, and two 102 pound spears on-board.

Navigation equipment includes tide markers, cross staffs, astrolabes, quadrants, hour glasses, compasses, and the *zondalezas*. The latter is an instrument used to measure wind speed. These devices are 1492 state-of-the-art.

The ships also carry shortwave transceivers and a sextant—barebones necessities for safe blue water sailing. While at sea, they maintain minimum operations on the shortwave bands (Table II), calling only when absolutely necessary.

Readers may catch position transmissions to EBA Madrid, Spain; CTP Oeirss, Portugal; or EAT Santa Cruz de Tenerife, Canary Islands on the 6 kHz band. While at sea, the fleet maintains contact on the 2 and 4 kHz band with American

*Squabbling and
politics kept Columbus
grounded until 1492;
500 years later the same
pettiness almost beached
the celebration.*

coastal stations and the USCG. In US ports, they operate on VHF-Marine frequencies (Table III).

The ships' complements include flag

commander Lt. Commander Santiago Bolibar Pineiro, who is aboard the flagship, *Santa Maria*. Lt. Commander Alvaro Ollero Marin, Lieutenant Luis Sanchez y Garcia de Leonardo, and Lieutenant (J.G.) Jose Luis Garcia Velo are the ship captains. Five other officers and 52 civilians round out the crews.

Table I shows the dates and ports where the caravels will call in the United States.

Because the ships emulate 15th century conditions, it will not be easy to intercept transmissions. The best monitoring opportunities will be when the caravels are sailing along the coast or in harbor traffic.

The foundation has no QSL policy, but as naval communications specialists, Sanchez and Garcia may be willing to respond. Try addressing reports to them at Sociedad Estal Quinto Centenario, Calle Aravaca # 22, 28040, Madrid, Espana.

Gran Regata Colon '92 will be the oceanic highlight of 1992 when more than 100 craft display their seamanship skills. This regatta is an extension of a hundred year symbiotic relationship between sail and radio. Marconi's wireless tests involved yacht races in the 1890's, including battles for the Isle of Wight and America's cups.

STA generates the rules and administrative procedures, supervises the race technicalities,

and puts its cachet on the event. Ships are classified by length: Class A, over 48.8 meters; Class B, 30.5 meters plus; and Class C, at least 9.14 meters at the waterline. (1 meter = 3'4")

The showstoppers are the Tall Ships, those graceful full-rigged training vessels that took part in 1976's Bicentennial Parade of Ships. Expected participants are listed in Table V.

To satisfy local pride in Spain, Italy, Portugal, Puerto Rico, United Kingdom, and the United States, STA decided to hold a multiple port start. *Gran Regata Colon '92* begins in both Genoa, Italy, and Lisbon, Portugal, in mid-April. Then, everyone sails to Cadiz, Spain, for the official start.

From there, they'll race to the Canary Islands. Some will go to Las Palmas de Gran Canaria and the rest to Santa Cruz de Tenerife. After resupply, the vessels will sail by Gomera Island. This was the last landfall for Columbus. Then it's "all sails" for San Juan.

Those ships too small to sail across the Atlantic will join the fleet in Puerto Rico. Then it's on to New York and the July 4th Grand Parade of Ships. That's followed by a week in Boston before heading for the finish buoy at Liverpool, England.

Table IV is a list of dates and ports. However, the regatta is subject to the vagaries of wind and weather, so expect changes along the way.

Try sending monitoring reports to Chief Radio Operator, (Name of Vessel), c/o Gran Regata Colon '92 — Quincentenary C,

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Courtesy of Spain '92 Foundation

Spain's King Carlos with the crew of the flagship *Santa Maria*.

Menendez Pidal, 3 BIS, 28036 Madrid, Espana.

Many vessels will fly the American Sail Training Association (ASTA) pennant from their mast. However, the Newport, Rhode Island, organization has no official connection with the race. As a spinoff from the British group, ASTA sponsors several sailing events each year; you may see them mentioned in future issues of *MT*.

Readers interested in attending the New York events can obtain more information from Operation Sail 1992, 2 World Trade Center, Suite 2164, New York City 10048, 1-212-912-1234, FAX 1-212-912-0731. For Boston, try Sail Boston 1992, 250 Summer Street, Boston 02210, 1-617-330-1992, FAX 1-617-330-1732.

Additional information on the caravels is available from Spain '92 Foundation, 1821 Jefferson Place, NW, Washington, DC 20036, 1-202-775-1992, FAX 1-202-775-3719. I extend my thanks to all three organizations for their help in writing this article.

If you come to Boston for either the caravels or the regatta, you'll find me aboard a thirty-two foot "rag-top" (nautical slang for sailing vessel) moored close to the action. I'll have a grog in one hand, a VHF-Marine band receiver cranked to the maximum, and my word processor going Force 10.



TABLE I
1992 CARAVEL TOUR

(Dates subject to change due to sailing conditions)

Port	Arrival	Departure
Miami, FL	02-14	03-01
Corpus Christi	03/13	03/22
Houston, TX	03-25	03-29
New Orleans, LA	04-03	04-05
Tampa, FL	04-10	04-19
St. Augustine, FL	04-23	04-26
Charleston, SC	05-01	05-03
Norfolk, VA	05-08	05-10
Baltimore, MD	05-15	05-25
Annapolis, MD	05-27	05-29
Philadelphia, PA	06-05	06-14
Wilmington, DE	06-16	06-17
Atlantic City, NJ	06-19	06-21
New York, NY	06-26	07-19
Mystic, CT	07-24	07-26
Boston, MA	07-31	08-16
San Francisco, CA	10-02	10-25
San Luis Obispo, CA	10-30	11-01
Los Angeles, CA	11-06	11-29
San Juan de Capistrano, CA	12-04	12-06
San Diego, CA	12-11	12-20

TABLE III
VHF MARINE FREQUENCIES

Possible channels for the caravels and regatta participants

Channel #	Frequencies	Use
6	156.300	InterShip Safety, Search and Rescue (SAR) comm.
9	156.450	Commercial Land, Non-Commercial InterShip and Ship-To-Coast
13	156.650	Navigational Ship's-Bridge-to- Ship's-Bridge
14	156.700	Port Operations InterShip and Ship-To-Coast
16	156.800	Distress, Safety and Calling InterShip and Ship-To-Coast, EPIRB*
20	157.000/161.600	Port Operations InterShip and Ship-To-Coast
22A	157.100	Coast Guard Liaison and Maritime Safety Information
24	157.200/161.800	Public Correspondence Ship-To- Coast
25	157.250/161.850	Public Correspondence Ship-To- Coast
26	157.300/161.900	Public Correspondence Ship-To- Coast
27	157.350/161.950	Public Correspondence Ship-To- Coast
28	157.400/162.000	Public Correspondence Ship-To- Coast
65	156.275/160.875	International Use
65A	156.275	Port Operations InterShip and Ship-To-Coast
66A	156.325	Port Operations InterShip and Ship-To-Coast
68	156.425	Non-Commercial InterShip and Ship-To-Coast
69	156.475	Non-Commercial InterShip and Ship-To-Coast
70	156.525	Digital Selective Calling
71	156.575	Non-Commercial InterShip and Ship-To-Coast
72	156.625	Non-Commercial InterShip
73	156.675	Port Operations InterShip and Ship-To-Coast
74	156.725	Port Operations InterShip and Ship-To-Coast
77	156.875	Port Operations InterShip
78A	156.925	Non-Commercial InterShip and Ship-To-Coast
84	157.225/161.825	Public Correspondence Ship-To- Coast
85	157.275/161.875	Public Correspondence Ship-To- Coast
86	157.325/161.925	Public Correspondence Ship-To- Coast
87	157.375/161.975	Public Correspondence Ship-To- Coast

*Emergency Position Indicating Radio Beacon

Listen for Notice to Mariner announcements a few days before the regatta's arrival for any channels reserved for the Grand Parade of Sails.

TABLE II
MARINE FREQUENCIES

(USB 3kHz spacing)

Channels	Ship	Coast
401 to 427	4065 to 4143	4357 to 4435
601 to 608	6200 to 6221	6501 to 6522
801 to 832	8195 to 8288	8719 to 8812
1201 to 1241	12230 to 12350	13077 to 13197
1601 to 1656	16360 to 16525	17242 to 17407
1801 to 1815	18780 to 18822	19755 to 19797
2201 to 2253	22000 to 22156	22696 to 22852
2501 to 2510	25070 to 25097	26145 to 26172

RTTY

Some *Gran Regata Colon '92* vessels may carry RTTY equipment.

Channels	Ship	Coastal
1 to 19	4172.5 to 4181.5	4210.5 to 4219
1 to 26	6263 to 6275.5	6314.5 to 6330
27 to 34	6281 to 6284.5	
1	376.5 (simplex)	
2 to 40	8377 to 8396	8417 to 8436
1 to 146	12477 to 12549.5	12579.5 to 12656.5
147 to 156	12555 to 12559.5	
1 to 101	16683.5 to 16733.5	16807 to 16902.5
102-193	16739 to 16784.5	
1 to 45	18870.5 to 18892.5	19681 to 19703
1 to 135	22284.5 to 22351.5	22376.5 to 22443.5
1 to 40	25173 to 25192.5	26101 to 26120.5

TABLE IV
Grand Regatta '92 Itinerary

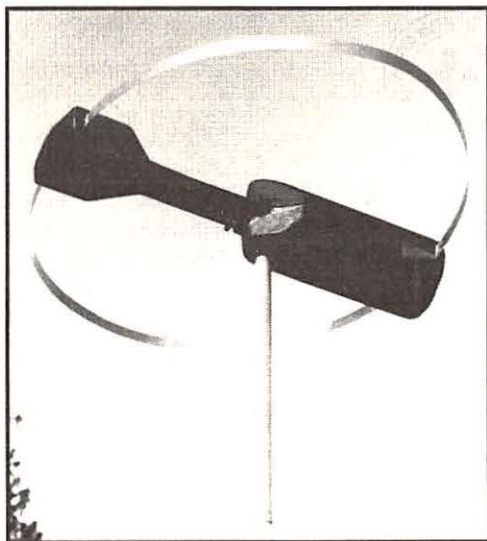
Arrival	Departure	Port
April 16	April 19	Genoa, Italy
April 23	April 25	Lisbon, Portugal
April 29	May 03	Cadiz, Spain
May 10	May 12	Las Palmas & St. Cruz de Tenerife, Canary Islands
		Gomera, Canary Islands
May 13	May 13	San Juan, PR
June 10	June 14	New York, NY
July 03	July 07	
July 11	July 16	Boston, MA

TABLE V
SOME PARTICIPATING VESSELS

Ship	Flag	San Juan	New York	Boston
Alexandria	USA	Yes	Yes	Yes
Alexander Von Humboldt	Germany	Yes	Yes	Yes
Amerigo Vespucci	Italy	Yes	Yes	Yes
Bill of Rights	USA	?	Yes	Yes
Bluenose II	Canada	No	Yes	?
Christian Radich	Norway	Yes	Yes	Yes
Concordia	Canada	?	?	Yes
Dar Mlodziezy	Poland	Yes	Yes	Yes
Eagle	USA	Yes	Yes	Yes
Eendracht	Netherlands	Yes	Yes	Yes
Esmeralda	Chile	Yes	Yes	Yes
Gloria	Columbia	Yes	Yes	Yes
Gorch Fock II	Germany	Yes	Yes	Yes
Harvey Gamage	USA	Yes	Yes	Yes
Juan Sebastian de Elcano	Spain	Yes	Yes	Yes
Kruzenshtern	USSR	?	?	Yes
Libertad	Argentina	?	?	Yes
New Way	USA	?	Yes	Yes
Nippon Maru	Japan	Yes	Yes	Yes
Sagres II	Portugal	Yes	Yes	Yes
Shabab Oman	Oman	Yes	Yes	Yes
Spirit of Massachusetts	USA	Yes	Yes	es
Statraad Lehmkuhl	Norway	?	Yes	?
Zenobe Gramme	Belgium	?	?	Yes

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Many Nations, Many Stations



International Organizations on the Shortwave Bands

UN  Radio

by Jeff Chanowitz



Where can you hear the latest information about diplomatic, cultural, and economic news of the world's 166 or more nation states? The answer is not on the external service of any one country, but on the shortwave broadcasts of international organizations. Though small in number, these stations broadcast rarely-found information and provide unusual additions to QSL collections.

Voice of the Americas

Since 1957, the organization of American States has operated a shortwave service called the Voice of the Americas which provides music, news, and programming to listeners throughout the Americas via transmitters in Bethany, Ohio.

Although the origins of the organization date back to the 1820s, the modern OAS was formed in 1948 under the treaty of Bogota as a regional organization with a mission of providing a forum for disputes, coordinating common action against aggression toward member states, and acting as an arena for cooperation in the economic, social, and cultural areas within the Western hemisphere. Mario Martinez, the Voice of the

Americas co-director, commented on the service mission stating, "Our mandate is basically the same as that of the OAS itself...We provide information about the activities of the assembly, the secretariat, and the OAS's 33-member states."

The existence of the OAS's external service is due to the initiative of one man: Demetrio Carbaga. In 1950, Carbaga was hired as a public information specialist at the OAS. Being a former radio announcer, Carbaga decided it would be good public relations to provide taped English language news and programming for radio stations in the United States. In 1957, the OAS provided increased funding for the service, which until then was run on a shoestring budget. In that same year, utilizing VOA's high-powered transmitters located in Greenville, North Carolina, the Voice of the Americas went on the air on shortwave.

During the late 50's and early 60's, the service expanded and provided Spanish, Portuguese, and French on a daily basis, with English broadcasts during the weekends. In addition, by relaying programming to a dozen 50,000-watt clear channel stations throughout the United States, the Voice of the Americas had an audience in the

tens of millions. In 1976, however, budget cuts reduced the Voice of the Americas's staff by two-thirds and caused the elimination of many programs and languages. Since 1978, the service's six full and part-time staff members have reorganized the external service. Today, with Carlos Flores and Mario Martinez acting as co-directors, the service broadcasts on shortwave in Portuguese and Spanish.

With 65-percent of the programming in Spanish, the Voice of the Americas is basically a shortwave service for Spanish speakers in Latin America. The service provides a number of historical, cultural, and informational programs. These include "Chronicles of Our Time," "American Horizons," "Economic Magazine," and "News Roundup."

Non-Spanish speakers can still enjoy the Voice of the Americas broadcasts of Latin American music and "Listener's Mail," which is a mailbag program that plays musical requests from listeners in any language. The program also gives out information about obtaining pen pals, answers questions about member states of the OAS, and reads comments from listeners. All listeners can also enjoy the "Concert of the Week," which broadcasts prerecorded performances of Latin American artists sponsored by the OAS.

While not broadcasting in English, the service produces English language programming for local stations in the United States and the Caribbean. Called "The InterAmerican Forum," the program is hosted by Douglas Clark, an American announcer who has worked with the OAS's radio department since its inception. Having worked on the "InterAmerican Forum" for the last 12 years, Clark describes the program as "a half-hour of interviews with ambassadors from mostly Caribbean countries." In addition to airing on local stations, shortwave listeners can sometimes find the "Inter-American Forum" on Radio For Peace International.

The Voice of the Americas is also the place to hear speeches from the many famous visitors and heads of state who address the OAS's main assembly. Martinez commented, "the visit of Pope John Paul II was one of our most popular programs. We received many letters about that visit." In addition to covering visits by such heads



The gothic style of the headquarters of the Organizations of American States makes it a very visible building. Located in Washington, D.C., it's just a block from the White House.



Carlos Flores, Co-director of Voice of the Americas, reads news in Voice of America's studios located in the basement of the OAS.



Mario Martinez, co-director of Voice of the Americas, in his office.

of State as King Juan Carlos of Spain, the Voice of the Americas also provides coverage of tours by famous Latin American artists and novelists.

Despite the service's small size, its reach is very significant. With a 250-watt transmitter in Ohio and a taped programming service which enables over 400 radio stations in North and South America to listen to the programming, Martinez commented that surveys conducted by the Voice of the Americas indicated that it reached an audience of "10-million people." Surprisingly, the 10,000 letters mailed to the station each year indicate that the audience for Voice of the Americas programming includes DXers in Spain, Israel, Japan, and Italy.

In addition to providing programming, the Voice of the Americas also provides listeners with a QSL on demand. To obtain a QSL, technical information such as the quality of the signal, date the program was heard, and the frequency of the program should be included in a reception report. Listeners can also request schedules or include comments about the programming by writing to: Voice of the Americas, 17th and Constitution Avenue, N.W. Washington D.C. 20006.

For the future, Martinez stated, "We are likely to add some more Spanish programming for local stations, but our shortwave programming is not likely to change." In addition to the continuity of the programming, listeners don't have to worry about the Voice of the Americas changing times and frequencies during the fall and spring. All programming can be listened to year round on 15160, 11.830, and 9.565 from 23:45 to 00:30 GMT.

International Committee of the Red Cross

DXers who only think of the Red Cross in association with blood drives or natural disasters may be surprised when they tune in programming

from the International Committee of The Red Cross. Their broadcasts provide information about this global organization, which plays a key role in everything from earthquakes in Armenia to prisoner exchanges in Iraq.

The ICRC is the founding body of the American Red Cross. The organization presents itself as a non-partisan, non-political, independent organization, which acts as a neutral intermediary in war and strife. The ICRC also provides protection and assistance for prisoners of war, civilian detainees, and for war-wounded and civilians in occupied territories. Additionally, the organization also visits political prisoners and helps people suffering as a result of conflict.

Called "Red Crossroads," a sample of the ICRC's 30 minute programming during July of 1991 presented listeners with a first hand account of the human costs of conflicts which dominated the news headlines. During the program, the ICRC reported its involvement in the civil war between the Serbs and Croats in former Yugoslavia, the fighting in Southern Lebanon, the large scale famine in Sudan, and problems of refugees expelled from Kuwait. As if to emphasize the danger in which ICRC members place themselves in order to save lives, the program presented the organization's reaction to the death of its employees in an ambush in Afghanistan.

Originating in the last days of World War Two, The Red Cross Broadcasting Service began as a service which announced lists of prisoners of war and of displaced civilians from its studios in Radio-Geneva. In 1948, realizing the usefulness of the service, the Swiss government granted the ICRC the use of 7210 kHz for use during national emergencies. Test transmissions began in 1951 with the object of finding out whether listeners in different parts of the world could hear the broadcast. These broadcasts continued until 1965, when Swiss Radio International and Swiss PTT helped to form the Red Cross Broadcasting service by donating recording studios and broad-

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"In addition to appreciating audience questions and comments, the Red Cross Broadcasting Service also provides QSLs"



casting facilities to the new service. After the service's inception, broadcasts became more regular, and in 1978 the Swiss PTT gave permission for monthly omni-directional transmissions in several languages.

Today, the Red Cross Broadcasting Service relays its programming via Swiss Radio International's 250-kilowatt transmitters in Schwarzenberg (directional) and Bermunster (omni-directional). Programming is broadcast in French, English, German, Spanish, Portuguese, and Arabic to all parts of the world. With Patrick Piper and Elisabeth Copson representing the entire English language service, the ICRC broadcasts a half-hour of English programming to North America. Look for Red Crossroads on the Tuesday and Friday following the last Sunday of the month from 0310-0327 UTC on 6135, 9885, and 12035 kHz Radio for Peace International also rebroadcasts Red Crossroads..

In addition to appreciating audience questions and comments, the Red Cross Broadcasting service also provides QSLs. Because the ICRC is non-profit, RCBS requests listeners to include (whenever possible) an international reply coupon to receive a QSL. However, RCBS does

require that reception reports should contain technical information such as time, date, frequency, and signal quality. The address to write to is Red Crossroads, The International Committee of the Red Cross, 1202 Geneva, Switzerland.

UN Radio

Being the world's largest international organization—over 159 member nations and a yearly budget in the billions of dollars—it's not surprising that the United National Broadcasting Service is the largest of all international organizations.

Called UN Radio, the broadcasting service has no shortwave transmitters of its own, but relies solely on international services to relay programming in 19 different languages to over 167 different countries and territories. UN Radio's audience, via both shortwave and local stations, is estimated in the hundreds of millions.

Since 1989, Aymen El'Amir has been chief of United Nations Radio's 47-member staff, which is based at the UN headquarters in New York City. Commenting on the service's mission, El'Amir stated, "our purpose is to carry the message of the United Nations to the world and

to inform the world about all the activities of the UN's agencies and committees."

The United Nations was established during World War II with a mission of maintaining international peace and helping nations cooperate for the good of all people. In 1947, the UN established a broadcasting service on AM. Over the years, it has expanded to operating on short-wave, FM, and program relays to over 140 local stations throughout the world.

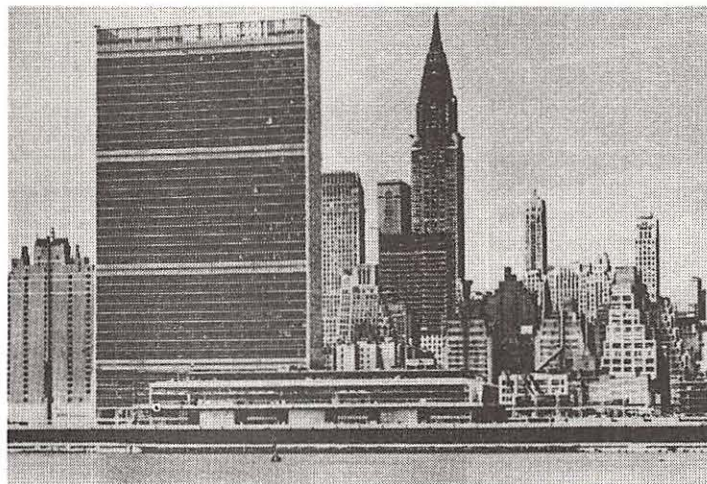
Today, UN Radio's English language short-wave programming can be heard on All India Radio to Asia, Radio Cairo to West Africa, and Italian Radio Relay Service to Europe. UN Radio is broadcast for the Western Hemisphere by Radio for Peace International (21465 or 15030 kHz) on the following schedule: Tues. and Fri. at 1930; Mon., Wed., Sat., Sun. at 2330 (all programs repeated eight hours later). News from the UN can be heard Mon. through Fri. at 2150 and 2345.

For international broadcasters, UN radioproducts a wide variety of news oriented programming including, "UN Africa," "UN Caribbean Echo," and "UN Calling Asia," which presents regional news relating to the activity of the United Nations.

"Perspectives" and "Scope" provide listeners with rarely-found indepth coverage of international issues ranging from health care to crime. "World Chronicle" conducts interviews with UN developmental program policy makers, and "World in Review" presents listeners with the week's news from the UN, which often is the center of activity during international conflicts such as the Gulf War. Also, "World in Review" enables shortwave listeners to hear unedited addresses to the United Nations General Assembly from visiting international leaders.

UN Radio also provides listeners with an opportunity to obtain QSLs. Information for QSLs should contain your name and address, the receiver you used to listen to the program, the program's name, the name of the station, and the language in which the program was broadcast. In addition, details of the program, personal comments, and information about interference, noise, propagation disturbance, and the overall merit of the signal on a scale of one to five should be included in a reception report. You may send your report or request for a program schedule to United Nations Radio, Room S-850, New York, New York, 10017.

Whether you're interested in information about an international crisis, cultural news about under-reported countries and regions, want to listen to see how these organizations are spending your tax dollars (through U.S. contributions to these organizations), or just want to obtain an unusual QSL, tune in to United Nations Radio, Red Cross Broadcasting, or the Voice of the Americas. DXers will discover hours of news and programming found nowhere else.



The United Nations headquarters in New York City overlooks the East River.



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On the Trail of Power Line Noise

Story and photos
by Wayne Heinen

Man-made noise can be one of the most annoying things in a Dxr's experience. The very weak signals the hobbyist is chasing are easily covered by such locally-generated interference. Let's assume that the noise you're getting is a loud buzz that covers a large portion of the HF band. You'll need to get rid of it to resume your normal DX activity.

First let's eliminate the obvious. If you have any fluorescent lights or lights on dimmer switches in the house, turn them off. If the noise is gone, you're in luck. The most obvious offenders have been eliminated. With my noise, I eliminated a portion of it by turning off the kitchen fluorescent light. Other offenders are the horizontal sweep oscillator in your TV, microwave ovens, hair dryers, furnace motors and certain inexpensive photo-electric switches. All except the last are usually intermittent and easily traced.

The Search Begins

Well, you tried the obvious, but the noise is still there. It's time to methodically zero in on your interference in order to determine its source. If you're using a table model receiver with an outdoor antenna, you'll need another radio to help with the project. Check to see if the noise is affecting any portion of AM Band. If it is, you can use any fairly decent portable AM radio to track down the noise. If it's not, you'll need a portable that tunes the frequencies that are being affected by the noise.

Start by checking every electrical device that is operating within your home. Put your portable right next to the suspected device. The noise should increase the closer you get. Disabling the device should eliminate the noise. If it doesn't, you'll need to keep on looking.

Widening the Search

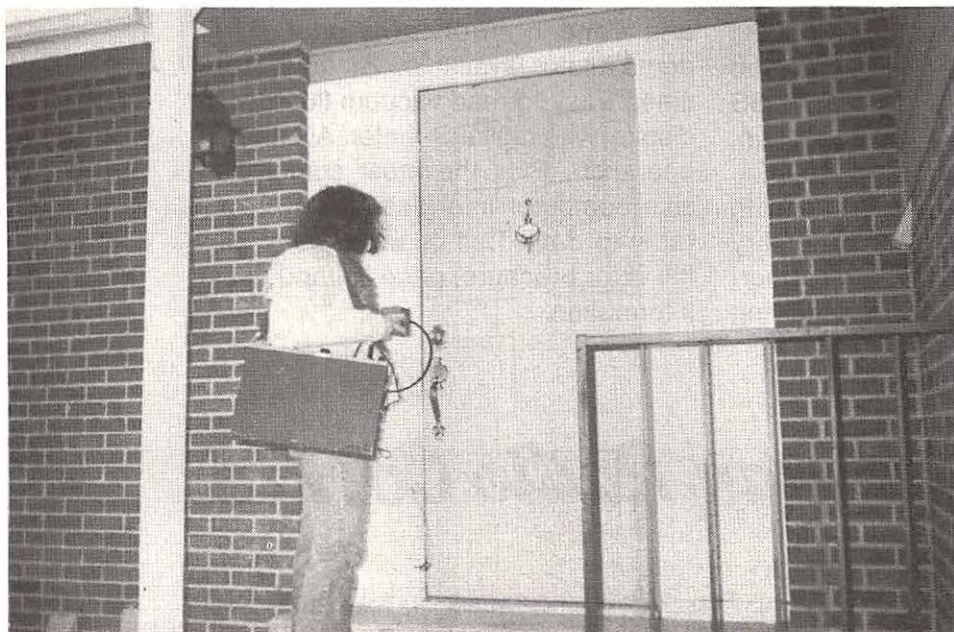
After you have checked everything within your own home, it's time to explore the other possible sources. The offender may be hard to find, but you may have an ally in tracking it down—your power company. The noise may actually be traveling into your house on their lines.

The first way to check for this problem is to place your portable near electrical sockets in the house. If your noise increases at every socket, regardless of what's plugged into it, you may be facing real line noise.

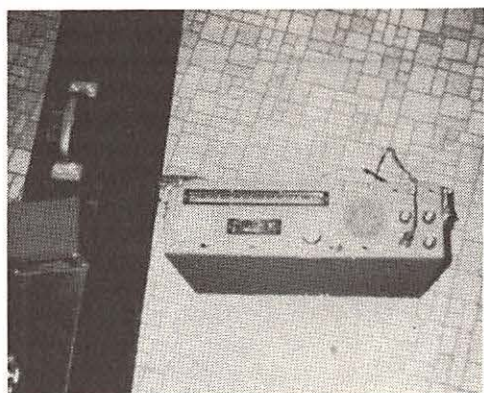
To be 100% sure that the noise is entering on your line, you'll need to do a few things. Go to your fuse or breaker box and see if the noise is loud there. If it is, it's time to isolate each circuit to see where your problem lies.

You'll need some help with this step. Have someone inside with the portable listen to the noise. In order to eliminate something you may have overlooked, start turning off each breaker. If you come to one that eliminates the noise, determine what's on that circuit breaker and track it down. An acquaintance here in town found that a noisy humidifier motor was causing his problem by using this method. If the noise quits when you turn off the last breaker, it's time to look elsewhere. I had my suspicions that my noise was coming in on the lines.

I called Public Service Company of Colorado and reported my problem. The next day Vicki Frye, Specialist Electric Distributions Division Service Investigations, was out to see what the trouble was. Unfortunately, my noise began at dusk and quit at dawn. I was unable to demonstrate it for her that afternoon; however, I did have a tape of a recent DX session that I played for her. She first looked for the obvious household problems. After I outlined what I had already checked, she suggested that I confirm that it was on my lines. We first checked the street light across the street from my house. Vicki could force it on with a special key. It was eliminated from our list when no noise occurred.



Vicki Frye: "You'd be amazed at what we find just by checking the doorbell."



Sprague "Radio Interference Monitor"

Since my noise was an over-night problem, I had to do much of the investigation myself. Vicki suggested I check at the breaker box using the following method: Put your portable up to the box and see if the noise is present with the main breaker off. If it is, follow the incoming line as closely as possible with the radio. Interference borne by the mains will be loud along the incoming line. In my case, it radiated nicely through the PVC pipe that brings the underground feed to my breaker box.

The next day I called Vicki to discuss the results of my tests. She had checked the subdivision maps in her office and told me that I could check houses with addresses between 4163 and 4131. These twelve houses were all served by the same transformer. Her theory was that someone was using a device, probably a photo-electric type, that was feeding the interference back through Public Service's transformer secondary and eventually into my house.

We formed a simple plan of attack. I would contact my neighbors Saturday afternoon to let them know about my problem. I told them that after the noise began I would be walking around their homes with my portable checking for the noise, especially around exterior lights and by placing my portable against the doorbell button. Vicki said, "You'd be amazed at what we find just by checking the doorbell." My neighbors expressed concern, and appreciation for the fact that I had contacted them during the day prior to my nighttime activity. This way they would know who was walking around with a portable radio and I wouldn't have to ring doorbells at dinner time.

I set my portable, a Radio West modified TRF, on the kitchen counter and tuned to 680 kHz. At 2 pm it was quiet. About 4 pm the noise began. It was almost full daylight and I was concerned that I was dealing with something other than a photo-electric switch. I started up the street with the TRF. It turned out the radio wasn't necessary. Three doors up, an exterior light on my neighbor's garage was flashing in a rhythmic pattern matching my interference! I rang his door bell and told him of the results of my test. Right then and there he came out and removed the offending bulb with the attached photo-electric switch. Interference gone.

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I went home and fired up the R-390A for my first sunset skip DX session on BCB in more than eight weeks. I logged one new station in about an hour's time then, much to my chagrin, the noise was back.

I grabbed the TRF and went back out on the street. The first two houses gave me the same muted buzz that I had at my place. This was determined by placing the TRF up against the door bell and around the exterior lights. The third house, where my defective photo-electric cell was found earlier, yielded up the apparent source of my noise. Two other lights were controlled by similar screw-in photo-electric switches. Both were emitting the buzzing noise that I had at home, as well as at my neighbor's doorbell.

It was late, so, I decided to wait 'til the next day to contact them. As it turned out, they had gone skiing in the mountains for the weekend. That week I called Vicki to confirm my results. "Many of the inexpensive photo-electric socket switches can cause the interference that you have." Her answer assured me I had solved my problem.

I asked her about the remedies I might have if my neighbor decided not to voluntarily remove the switches. Public Service sends out an official letter giving the owner of such a device a specific time period in which to correct the problem. If they fail to correct the problem the FCC can be brought in. Since the evidence has been gathered by Public Service, the FCC usually acts very swiftly to force the cessation of the interference.

My neighbor did remove his photo cells but, unfortunately the problem wasn't cured. The noise reduced in intensity but something else was still on my line. The next step was for PSC to come and check on all the street lights that might feed from the transformer. They checked and found that one was sputtering. This light was disabled for the night so I could check for noise that evening. It was still there.

About a week later, Vicki came to my house with her equipment. She had a battery-operated Sprague "Radio Interference Monitor" that she hung from her shoulder. This, coupled with a hand-held loop antenna, were the weapons we needed to track my elusive noise. We started down the street.

The house next to mine exhibited the same noise level as mine. The house next to that was somewhat higher and the third house was at a very high level. As we doubled back to the second house to check at the meter, THE NOISE COMPLETELY STOPPED! Both neighbors knew that we were searching for my noise and that we had it narrowed down to these two houses.

We went back to my house and waited about 45 minutes. The noise didn't return. We had talked to both neighbors about the types of things we were looking for and evidently one or the other decided to disable the device before we actually figured out which house it was in. We aren't sure which house and we aren't sure what was causing the noise, but it hasn't been back since!

Radio Finland's Teri Schultz

A journalist's journey from America
to the northern land of the midnight sun.

By Jeff Chanowitz

Sisu is the Finnish word for perseverance. In Finland Teri Schultz is the American personification of the word. Despite many obstacles, Teri eventually established herself as the English voice for Finnish news for shortwave listeners and television viewers worldwide.

Picture Teri sitting in the broadcast booth at Radio Finland's studios located in Pasila, just outside the Finnish capital, Helsinki. Teri, a young, blue-eyed, light-brown haired woman, seems at ease typing and reading radio scripts for later broadcast. Yet, her transition from American television journalist to Finnish reporter was not an easy one.

Teri's journey began with her graduation from New Mexico State University. Her goal was to become an international broadcaster. Being young and inexperienced, this possibility seemed out of reach in the United States. Consequently, she looked to Europe searching for an opportunity to work overseas. After a year of "bombarding" YLE Radio Finland with tapes, she found herself with a job as a television producer at YLE and reporter for Radio Finland.

With two hundred dollars in her pocket and all her belongings in a trunk, Teri quit her television job in Texas and arrived in Helsinki the next day. "I moved from 100 degree Texas temperature to the cold Finnish weather in September ... I did not know anybody and did not have an apartment," Teri remarked about her first difficult weeks in the country. She quickly found out that apartments are very expensive and hard to find in the Finnish capital.

With no hope of renting affordable living space and her money running out, Teri was forced to live out of a youth hostel for the first couple of weeks. Her situation seemed dismal as she had neither enough money for housing nor a plane ticket back home. With the help of a relative who knew a Finnish doctor, Teri managed to solve the housing problem. Yet, her cultural adjustment to life in Finland was another unanticipated barrier. Teri commented, "It was very difficult for me at



Teri Schultz is lucky enough to get an interview with one of the "shy Finns" for her "Out and About" program.

first because Finnish culture is not an immediately open one.. Nobody would talk to me!"

Teri found herself in the position of being the first American addition to Radio Finland's staff in over a decade. She was described by some of the management at Radio Finland as the "new journalistic animal," for her new ideas and American reporting style. This style included both reading and writing news for broadcast; traditionally written and read by two different people. Representing a shift toward a new journalistic direction, Teri encountered considerable friction between her and some staff members of Radio Finland.

Although Teri utilized some innovative ideas, she also had to adapt to a different journalistic style. "Radio Finland has a style of its own," Teri said explaining that Finnish reporting uses a more formal style than the American. Fewer adjectives are used, and story content can seem very dry. This was quite a contrast to the "happy-talk style" that Teri was familiar with in American television.

She also learned that the phrasing of an issue was important. For example, in Finland, the Chinese military crackdown could only be described as the "crushing of the democracy movement" rather than a massacre because the Finnish government had not recognized the suppression as a massacre. Nor does the Finnish press play as much of an adversarial role as in the U.S. according to Teri. She added, "I think that it should be the responsibility of the media, and shortwave included, to provide critical views of governmental policy."

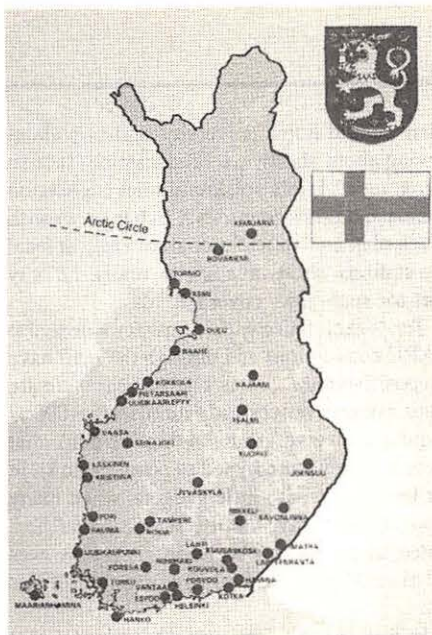
Such stories as discrimination against gypsies, and tensions between Finns and blacks (mostly Africans) should be covered more critically in her opinion. Having listened to Radio Moscow, Teri added, "Their programing is more critical than Radio Finland's!"

After a year on the job, Teri became comfortable as one of Radio Finland's 35-member staff, which is the second largest external service in Scandinavia.

Radio Finland was formed in 1939, a critical year in Finnish history. During that year, Finland was invaded by Soviet troops and forced to fight alone for its political survival against overwhelming odds. Also at that time, the external service voiced Finland's cause to the world. English is the oldest foreign language service at Radio Finland.

Teri agrees the external service is still important today. "Since most Americans will not travel here, Radio Finland provides the only information most will receive about this very interesting country. It also provides Americans of Finnish ancestry (mostly located in Michigan) with a chance to learn about their heritage."

For Finnish Americans, Radio Finland provides information on the country's history. Teri commented, "While I think we should provide more information about modern Finnish life, we do a good job of balancing programs about Finland's past with ones about the present."



Any report on Finland written for an international audience must begin with the assumption that "nobody knows anything about the country." To most Americans and many Europeans, the sparsely-populated Scandinavian country of 5 million people bordering the Soviet Union is a mystery. The few stereotypes that exist concern the cold climate or the large amount of forests that cover Finland. Teri remarked, "I can relate to the quantity of people who know nothing about Finland." Before arriving in the country, Teri found it hard to get any information on Finland other than history books on the Finnish/Soviet war. Because of her own experiences, Teri tries to produce programs that take listeners out of the studio into the towns and events that mark the life of Finns.

"Out and About" is a program that Teri produces to give listeners insights into Finnish life. Designed as a tourism magazine, the program takes listeners from interviews with Santa Claus during Christmas in the Northern town of Rovaniemi to the many festivals that take place during the summer. Commenting on subjects chosen for the program Teri stated, "A story that would not mean anything to a Finn is a story to a foreigner. It's a story to go to a festival in

summer and describe the streets and the people. Common things, like Mid-Summer, are never heard of in the States."

Many of the subjects for the program are picked from audience suggestions. Listeners think of Finland as an exotic place and are curious about the lakes, Lapland, and Finnish winters. One memorable listener from the Philippines wrote that the program "tickled her toes" and made her feel like she had "visited Finland," which had brought her "great joy." Teri finds a personal satisfaction in the letters sent by listeners. "With shortwave you feel isolated from your audience. You send out information to Canada or South America. When you get a letter, it humanizes the audience."

Another program that Schultz produces is "Close-Up." The program features man-on-the-street interviews with Finns about contemporary subjects. Because Finns are very shy, getting answers to Teri's questions has proved very difficult. She commented, "I would spend hours trying to get answers to questions. If I would come up to a bus stop with a microphone, they would run away." When Teri did manage to pin Finns down, many would not comment on political questions. Even when asked their favorite color, many Finns answered with a firm "I would prefer not to answer that question."

Teri recalled one particularly terrible winter morning. While freezing on a Helsinki street, she searched in vain to get one Finn to answer to a question on what they were planning to do during Mid-Summer. Teri's frustration was so great that she talked jokingly about "finding foreigners and have them answer her questions with fake Finnish accents." Alluding to Finland's 45 year-old international policy of remaining neutral, Teri described the Finnish reluctance to answer any question as "neutrality in its most extreme."

"Air Mail" is a program that Teri participates in with Kate Moore. Teri describes the program that answers listeners mail as "the most fun and

Teri is not only an international broadcaster for Radio Finland, but also finds time to report for CNN's International News Hour.



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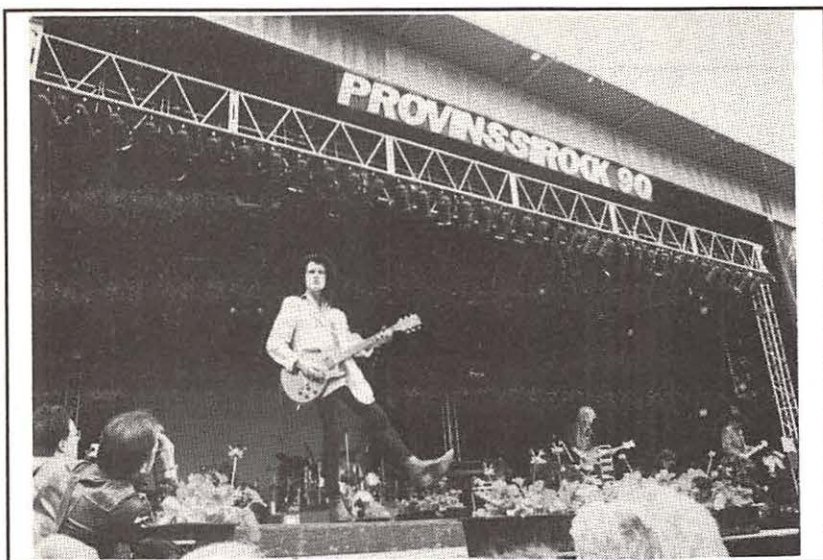
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A picture from Provinssirock in Seinäjoki. The Finnish rock band "Nights of the Iguana" plays at one of the summer festivals that Teri enjoys covering for her "Out and About" program.

loose program on shortwave." She added, "We read listeners letters and make fun of them... We make fun of Finland and ourselves." The program even makes fun of Radio Finland's slogan, which on the program is "News of the North and More ... Kate Moore." One memorable program included an interview with a participant of a herring festival. When asked about herring, the woman responded with some rarely found honesty stating, "I do not like herring one bit ... it's an awful fish." It should not be surprising that during the war in the Persian Gulf, many listeners wrote in to thank Teri and Kate for their humor, which gave many people a respite from the heavy news of the war.

Teri refuted the myth that a journalist's life is only fun and travel, declaring, "There is no glamour as an international journalist in Finland." The reality is low pay, long hours, and hard work. Remarkable about a story on the Soviet hijacking of an airliner to Finland, Teri recalled being at YLE's studios late at night trying to talk to CNN (Cable Network News based in Atlanta, Georgia) by phone, while the Estonian cleaning lady's radio was blasting out rock music. She recalled pleading with the cleaning lady not to turn on the vacuum cleaner before finishing her last report to CNN. Teri also recalled on another occasion having to change in the woods of Roveniemi while dodging mosquitos in order to prepare for a television news story.

Yet, as a reporter in Finland, Teri has the advantage of going into greater depth with her stories than in the United States. Says Teri, "Ten minutes of air time to do a feature on a summer festival is unheard of in the U.S., where two minutes is the norm."

Additionally, Finland, as the gateway between east and west, allows other unique opportunities to cover international conferences. Teri commented, "There is not a lot of spot news, but there are many diplomatic conferences." The summit between Gorbachev and Bush in Helsinki

was an example. Teri bragged, "During the summit I told Peter Jennings where the bathroom was." At a conference on the Middle East, Teri interviewed a PLO delegate and an Israeli delegate. Although neither delegate talked with each other, both delegates told Teri separately that they would be interested in negotiating.

Teri's most memorable story involved a total eclipse of the sun in Joensuu, a city located in the eastern part of Finland. When assigned to cover the eclipse, Teri was perplexed. "What am I going to say for six minutes about the sun going away and coming back?" So she went to work researching eclipses and talked to people about the fly-by viewing planned by the Finnish national airline, FinnAir. During the event, Teri positioned herself on an island that gave her a good view. As the sun disappeared, she described the color of the sky and the reactions from the birds and other wildlife.

After putting the story together, Teri was upset. She thought that the story was terrible, but had to go with it anyway. When the program finally aired, to her surprise, the story received the most amount of positive feedback of anything she had produced for Radio Finland.

Yet, the stories that Shultz loves to cover are about the hundreds of festivals that take place during the summer. She commented, "I love to talk to people at festivals ... Coming from a news background, I ask them what's the party and what are you partying about." She also enjoys hunting for special things about Finland. "I find it a challenge to find reasons for people to come and visit Finland during spring, summer, and fall. No one has written me saying I went to Finland because of your program, but I have received some nice letters."

Teri's view of shortwave is that "It's essentially an international relations lesson in itself." While in the United States, Teri had never heard about shortwave. But now she is very adamant about the benefits of DXing. "No journalism

student should finish university studies without knowing about shortwave broadcasting. It is so fascinating..... It lets you know what is going on in China and other countries." In her view, with the lack of indepth international coverage at local radio stations, shortwave is now really the only outlet for such news coverage.

Teri's experience with shortwave listeners at ANARC conventions and through the mail have been positive ones. She is glad to hear there are serious listeners, but correctly surmises that DXers are quite a diverse group stating, "I think that DXers are often stereotyped as people who sit in their basements with little gadgets, when many people use shortwave for different reasons." Teri pointed to the Gulf War when shortwave was used as an educational tool as an example of this fact.

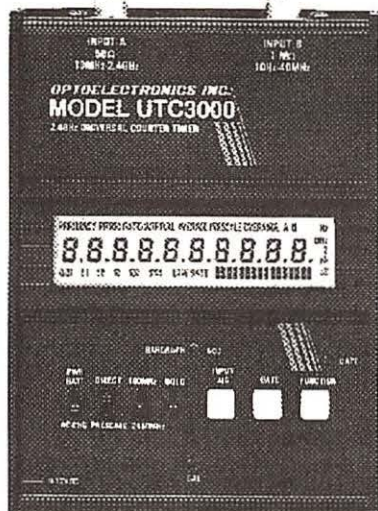
In Finland there are so few foreigners that Teri herself has become an ambassador of sorts. She commented, "I find myself defending the United States because there are very few Americans here." More than once she has been asked "why did you (Americans) start the Vietnam War?" She also finds herself clearing up a lot of the misinformation about life in the U.S. She remarked, "I think the Finns have too rosy a picture of the United States. I find myself supporting a lot of things that Finland has ... like a decent comprehensive welfare and social security system."

In addition to her work at Radio Finland, Teri produces reports on a freelance basis for other broadcasters. She is currently heard on Radio Norway, Radio Sweden, BBC World Service, and Radio Deutsche Welle. U.S. Radio Listeners can hear Teri on the American Public Radio program "Market Place." She can also be seen on CNN's "International News Hour" and World Vision television. Teri also writes for various English language magazines.

Talking of her two and half year experience at Radio Finland, Teri recommended, "Anyone who wants to be a credible international journalist has to leave their own country. You have to see things from a different perspective." She personally found that, "Finland, with its closeness to the Soviet Union and neutrality is a very useful country to be in."

Reflecting on her experiences, Teri summed it up: "I have learned so much." An ambitious journalist, Teri has already moved on to do more freelance work for radio and television networks. But, with tighter budgets and smaller staffs, shortwave needs more broadcasters like Teri Schultz to provide innovative and exciting ideas for the next generation of shortwave listeners.

U.S. listeners who want to receive a program schedule, check the latest program updates, or ask a question, may call 1-800-221-9539 or write Radio Finland, Box 10, 00241, Helsinki, Finland. For any readers who don't already know, Radio Finland has a strict non-QSL policy.



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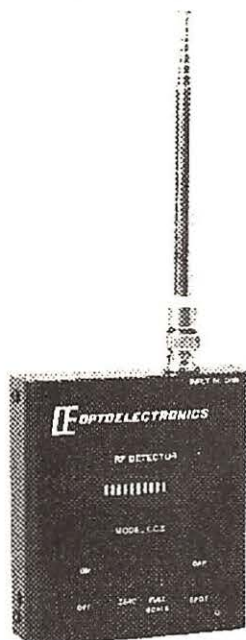
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AFGHANISTAN As the USSR ceased, so did relays of Kabul at yearend; by January 5, 4740 was carrying Radio Moscow WS instead, 0115-0200 (Brian Alexander, PA, *World of Radio*) And at 0300 (Hans Johnson, MD, *ibid.*) External service Radio Afghanistan now on 9635 only, from within the country, with English at 0930-1030 (unconfirmed), new times 1300-1330 and 1830-1900. Domestic service on 7200 at 0130-1830; 2nd program on 6100 (BBC Monitoring)

ALASKA KNLS features national anthems during English hour until 1400 on 7355, such as Belize (Tim Hendel, FL) And Chile the day I listened, at 1348. Program is made up of 2-minute features for those with extremely short attention spans; address must have been given thirty times during the hour; also interrupted for Japanese and Russian announcements (gh)

ALBANIA (non) WWCR moved the Voice of Young Albanians in Exile to Fridays at 2200-2300 on 12160 (*W.O.R.*)

ALGERIA Radio Algiers International heard in English at 2000-2100 on 11715, also announcing 1700-1800 on 17745, 9535 but not heard (Eugene---, *BRT Radio World*) RTVA with new external service in French 2130-2230 on 15325.5, messing up RCI (Bob Padula, Australia)

ANDAMAN ISLANDS AIR Port Blair engineer Mr. Y. Bajaj refused to verify report since it covered Delhi relay normally in progress when heard at 1530-1630 on 4760; try for local programming elsewhere (Henrik Klemetz, Sweden, *Play-DX*) Another letter says inactive on 4760, using only 7170 at 0700-0800. Return postage not needed (Peter Lok, Holland, DSWCI)

ANGOLA UNITA station VORGAN announced new schedule of 0445-0830, 1045-1430, 1645-2300 on usual frequencies; news at 0500, 1200, 1900, flashes at 0830, 1100, 1430, 1800, 2300 (BBCM)

ANTARCTICA After activity on 15476 in November and December, LRA-36 vanished in January; told me via phone it's on vacation until March; had not sent any QSLs yet (Gabriel Ivan Barrera, Argentina, Radio Nederland Radio Enlace)

AUSTRIA ORF fax is 431-87-878-3630; visitors are welcome, but arrange ahead, and Fridays are particularly hectic (Radio Austria International)

BELGIUM BRT moved both transmitters to 9925 for English at 0030-0055 (Wolfgang Bueschel, *Weltweit Hoeren Weltschau*)

BOUGAINVILLE Breakaway island "republic" off Papua New Guinea has SW service thanks to the International Amateur Radio Network, Radio Free Bougainville—national service at 0900-1200 in local language on 3890 AM; international service on or below 21500 USB at 2200 and 0100 to Americas, 0400 and 0700 to Asia, Pacific, Africa; 1300 and 1600 to Europe (John Norfolk, OK, *W.O.R.*) QSL via IARN rep in Australia, Sam Voron, VK2BVS, 2 Griffith Ave., East Roseville, NSW 2069 (Al Quaglieri, NN2U, *SW Echo* via Kirk Baxter)

CANADA CKTB, St. Catharines, Ont., heard on 5490 at 2230, ninth harmonic of 610 which was blocked by local (Bob Brown, PA, *W.O.R.*)

CHINA Jiangxi PBS on 6041.4 at 1445 ID, fair to strong in Denmark (Finn Krone, AWR via WDXC *Contact*) Voice of the Strait 2, 4900, English talk about refrigerator 1645-1650 (Dave Kernick, UK, *BDXC Communication*) Voice of Pujiang replaced 3990 with 7115, still on 3280 and 4950. Heilongjiang PBS, Hohhot, First Program in Standard Chinese on 4840 also includes Korean at 0230-0330; Russian/English lessons 1330-1400, 2100-2130 (BBCM)

COLOMBIA Radio Nacional's English program heard until 2400

on 11822.5, address Box 94321, Bogota (Andy Wallace, *SW Echo* via Kirk Baxter) It's *Colombia DX*, scheduled Saturdays at 2330 in English, UTC Sundays 0115-0145 in Spanish, also on unheard 17865, produced by two non-government journalists; includes DX news (Jeff White, RN *Radio-Enlace & Media Network*)

Unofficial station in Narinyo area on 5534.4v at 2340, nonstop music Although Radio Patria Libre no longer near this frequency, counter-station El Pueblo Responde heard again on 6300.00 until 0100; confusable with Sani Radio, Honduras on 6299.38 usually closing an hour earlier; one had English lessons 2334 (Juan Carlos Codina©, Lima, Peru, via Dario Monferini)

COSTA RICA Radio for Peace International announced 21465 USB is only about 400 watts, and expanded to 24 hours—sometimes better heard here as late as 0730 than 7375 USB. 15030 with only 500 watts gets worldwide reports too (gh). Program timings in the 0800-1300 period are not strictly 16 hours later than original; *World of Radio* heard UTC Sunday around 0900 (Bjoern Fransson, Sweden)

CROATIA Contrary to January item, I cannot fax-forward reports to Croatian Radio, Zagreb; direct fax to them is 011-38-41-451-060 (George Rudman, Croatian-American Association)

CUBA RHC reorganized English programming: 0200-0430 on 13700 ex-5965; 11950 and 6180 end at 0500, ex-0600. To Europe 17705 cut to one hour at 2000; new transmission at 2200-2300 for Caribbean and USA on 9620 (*DXers Unlimited* & via Daryl Rucker) *DXUL* still on Saturdays but around 2015, with 9760 also announced for this hour. Remains on 11760, highly distorted, at 0400-0500 and 0600-0800 (gh)

(non) La Voz del CID is mostly in Spanish, occasionally Russian or English, but UTC Sunday at 0330 on 7340 and 9942 Spanish mixed with an African language in Santeria program mentioning gods, presumably Yoruba (Tim Hendel, FL, *W.O.R.*)

La Voz de la Federacion Mundial de Ex-Presos Politicos Cubanos, busted near Tampa in November, was back in January on 7417.7v at 0130-0150, probably new location; claims two of three commandos captured in Cuba were members (David Crawford, FL, *Crossband RNI*)

CHILE SW site 27 miles SE of Santiago is for sale at \$1 million, including seven 100 kW transmitters, 7 antennas, 3 substations (RN *Media Network*)

ECUADOR HCJB program *Blues, Rags, Jazz* (& Evangelism), is on Sundays at 2130 on 15270, 17790, 21455 (HCJB) The classical music show UTC Saturday 0630 on 11925 was heard instead on totally out-of-tune transmitter covering 12165-12180, barely audible beneath motor-boating sound. This and another ideologically-motivated outlet, RHC, are the worst offenders in technical foulups—keep the transmitter on the air, no matter what! (gh)

Radio Nacional, relayed by HCJB, now weekdays at 1730-1800 on 15350 (*DX Partyline*)

Radio Nacional Espejo came back on 4679.49 in late January, 0015 past 0100 with definite ID still claiming old frequency 4635; before this, 4th harmonic of Radio Central, Riobamba was audible on 4679.86, Bolivian and Argentine stations around 4680 cause further confusion (Juan Carlos Codina©, Peru, via Dario Monferini)

Ecos del Oriente, Lago Agrio, 3270, heard with strong but poorly modulated spurs on 3227 and 3313 at 0335; friendly station with big, beautiful QSL (Richard McVicar, HCJB *DXPL*) Radio Pastaza, Puyo, closed its 3315 outlet a sesquiear ago and now it has been deleted (*ibid.*) Radio Cumanda, previously on 3332, now closer to nominal 3350, heard

Shortwave Broadcasting

on 3350.51 at 0938-1102, mainly music with canned IDs (Chuck Bolland, FL, W.O.R.)

ERITREA Lacking mail service direct, reports to Voice of the Broad Masses of Eritrea may be sent via EPLF's Desk for Nordic Countries, Torsplan 3, 1 tr, 113 64 Stockholm, Sweden; or fax 08-322337. But reply mailed from Addis Ababa, by Mehreteab Tesfagiorgis, Information Dept., Radio Branch, VOBME, Asmara, mentions 3940, 7020, 7490, in six languages at 0330-0700, 0900-1100, 1330-1700; I heard 7020 at 1645-1700 (Bjoern Fransson, Sweden, W.O.R.)

FRANCE (non) RFI has been testing SSB with 6 dB carrier reduction on 17860 at 1300-1600 via Guiana; planned to try the same on 21645 (George Poppin, CA, W.O.R.)

GERMANY DW's building in Cologne must be torn down because of asbestos; looking for new offices in Bonn or Cologne vacated by government ministries moving to Berlin. DLF external services are taken over by DW; transcription service may be closed (Volker Lilienthal, *Frankfurter Rundschau* via *German Tribune* via Martin Gallas)

GREECE VOG keeps moving out-of-band trying to avoid interference; latest to North America: 0000-0350 on 9395, 9420, 11645; 1200-1250 on 15565, 15650, 17515; 1500-1550 on 11645, 15565, 17525 (John Babbis, Silver Spring, W.O.R.) Includes English Monday-Saturday 0140, 0340, 1530; daily 1235 (Bill Matthews, Radio Korea *SW Feedback*)

IRAQ Baghdad in Arabic at 2315-0115 on 11830 now includes English news segments, such as 0049 or 0056; blocked by OAS at 2345-2430 (Brian Alexander, PA, W.O.R.) Now called Radio Iraq International, also on 15455 to South America (Paul McClintock, MN, *RNMN*)

ITALY Voice of Europe, Pordenone, testing irregularly 1400-2300 on 13639-13642 with simulcasts of its FM, Radio-TV Carnia Vacanze, RTCV; may be regular from March (F. Clemente, Simon Weiss, La Botto Fiora, Dario Monferini, W.O.R.)

IVORY COTE Seldom-reported English service from Abidjan 11920 now scheduled 1833-1930 daily, with news around 1845-1855 (BBCM)

JAPAN (non) Radio Japan expected to begin relays via BBC UK station to Europe April 1 (Bruce MacGibbon, *SW Echo* via George Thurman)

JORDAN What's the Arabic station blocking WWV on 10000, 2030-2040? (Brian Alexander, PA) Amman ID heard at 1800 (Gary Wysocki, *SW Echo* via Kirk Baxter) Also at 2055 parallel 7155 and 11810, illegal on timesignal frequency (Bob Padula, Victoria) Also ID at 2100, certain days before and after Xmas; faulty synthesizer? (Elton Byington, NY, *Fine Tuning*)

KASHMIR Azad Kashmir Radio on 3663v at 0045-0410, 1045-1810; 2nd program 0045-0410 on 4790, 6068; 0930-1415 on 7267; 1430-1810 on 4790, via Pakistan (Finn Krone, AWR via WDXC)

KAZAKHSTAN went along with Russia in resuming DST mid-January, and Radio Alma Ata English moved one UTC hour earlier: 1930, 2130, 0030 on same frequencies (Eugene---, *BRT Radio World*) First two on 5035, 5960, 5970, 9505; last on 5915, 6135 (Eugene, earlier *BRT RW*)

KURDISTAN (non?) Voice of Iraqi Kurdistan on new 6295, unjammed, loud and clear at 0433; nothing around previous frequencies 3970, 5545 (Hans Johnson, MD, W.O.R.)

LESOTHO No sign of Radio Lesotho on 4800 or MW; now FM only (Vashek Korzinek, RSA via Dario Monferini)

LIBERIA (non) ELBC transmissions on 7275 are via 10 kW transmitter in Lagos, Nigeria, opening at 0650, closing 1700; but Box 594, Monrovia address is valid (Geoff Cosier, DSWCI via *Play-DX*) Here we go again

LITHUANIA Radio Vilnius announced Jan. 8 that from March 1, English at 0000 would be on 9870, 15180, 17605, 17690 (Charles Brian Goslow, MA)

NETHERLANDS RN makes major changes March 30; to Asia, 0830 and 1130 replaced by 3-hour block at 1330-1625, with final hour repeating first hour; another 3 hours in morning 0030-0325; and to Africa 1730-2020 instead of 1630 and 2030. Pacific shows at 0830 and 0930 will be live rather than repeats of 0730; suspend Europe at 1130, 1430; North America still separate 0030 and 0330 broadcasts (*RNMN* via Diane Mauer, WI)

NEW ZEALAND RNZI planned to test 15305 two Saturdays in February at 1800-2100, to learn how it might work next southern summer instead of 15120; but interference factors could be completely different by then!

NICARAGUA Radio Rica, Managua, 1 kW on 4920 at 1300-1500, 0100-0500, variable due to power or important happenings (Harald Kuhl, Germany, *Play-DX*) Radio Miskut heard again Jan. 27 until 2305 closing after Nicaraguan anthem on 5560.00 (Juan Carlos Codina©, Peru, via Dario Monferini)

NIGERIA FRCN started originating news from new capital Abuja, but because of poor feed quality, went back to Lagos (BBCM)

PALAU High Adventure will build "China" station here instead of Guam, 50 year lease signed, but needs more money first (Dave Kenny, UK, BDXC, *Communication*)

PALESTINE (non) PLO program *Voice of Palestine* heard via Yemen 1603-1630 on 5950, also announcing 5970, 7190, unconfirmed (N. Takahashi, Radio Japan *DX Corner*) Russian time change produced QRMoscow on 5950 (Yuki Sakagami, *ibid.*) Program also extended via Algeria, daily 1800-1900 on 17745, 11715 though also announcing 9685, 9510, 7245, 6145 (BBCM)

PERU 4356.36 at 0215-0300, distorted, tentatively Radio El Campesino, previously on 5560/5555.

4665.50v, Radio Uno, Huanuco at 0018, perhaps moved from 4679.6 due to Ecuador interference, *qv*.

4746.70, Radio Huanta 2000 on new frequency, loud and clear still announcing 4755.

5070 is planned channel for new 1.5 kW outlet in Quillabamba, per a friend who builds transmitters.

5234.22, Radio San Antonio de Padua reactivated from Arequipa area after 4-5 months, very weak with ID at 2337.

6200.38, Radio la Voz de Huamanga back after 3 months, at 2345; music programs to become more cultural.

7048.86, Radio Azangaro had drifted up to here by Jan. 24 at 2350 (Juan Carlos Codina©, Peru, via Dario Monferini, *Play-DX*)

Radio Norandina, Celendin, 4461, says it operates evenings only, around 2300-0200 due to electricity shortage; address is Jiron Pardo 579 (Vashek Korzinek, RSA, via Monferini)

Radio Agricultura, Lima, heard at 1110 on 3180, second harmonic of 1590. Radio Paramonga, previously listed only but now heard on 3204.62 at 1116-1130; is in Barranca, Lima dept., formerly La Merced (Jan-Erik Osterholm, Santa Barbara, CA, via Henrik Klemetz, via Monferini)

Radio Tawantinsuyo on new 4908.00 at 1033, gone by 1055 (Chuck Bolland, FL)

POLAND Polskie Radio Warszawa published new schedule effective Jan. 13 showing four 55-minute English broadcasts at 0630, 1600, 2000, 2200. But on Jan. 24 announced new times effective Feb. 1, 1300, 1600, 1800, 2030 on 9525 and others. Deletion of 0630 and 2200 broadcasts makes it much harder for us to hear Poland (Tom Kuca, NY, W.O.R.) Also check 5995, 6135, 7145, 7270, 11840.

PORTUGAL RDP English on weekdays: 1500-1530 on 21515, 2000-2030 on 11740, 2100-2130 on 15250, and UTC Tue.-Sat. to Americas on 11840, 9705, 9600, 9570 (BBCM)

Shortwave Broadcasting

RUSSIA KSDA's DX program announced that AWR Russia would begin Feb. 1, using existing transmitters in Siberia (Wade Smith, NB, W.O.R.) From 100 kW in Novosibirsk, targeting South Asia, China, Mideast, adding 200 or 250 kW later; programmed from AWR Media Center in Tula, south of Moscow (AWR-Asiawaves via Wolfgang Bueschel and AWR Trans-Missions via C. Eric Stachling)

Radio Moscow WS in Russian announced it would continue, including *DX-Klub* program (BBCM) RM cancelled its mailbag program Jan. 16 because sacks of mail had been stolen and ransacked by thieves looking for foreign currency (UPI via Mark Huff, *SW Echo* via Kirk Baxter)

A feeder on 5777 USB has artistic and cultural programs, on the air 1600-0100 often announcing incorrect times; ID at 2000 for *Radiostantsiya Novaya Volna* (New Wave); bible class Saturdays at 2200 (Martin Reynolds, WDXC Contact) Actually 5775 USB, very strong (Mike Barraclough, WDXC, ed.) Also with New Wave on 5775 LSB around 1900 (Anker Petersen, DWSCI SW News)

Vasily Strelnikov, now working for *Media Network*, interviewed Sergei Agaynovsky(?), music editor of Radio Ala, 24 hours with guitar music of the bards, soothing music in contrast to rock. Uses former Gostel transmitters and rents space in same building as RMWS; still hiring, needs 30 people and please don't write as is short-staffed. Refused to answer questions about meaning of name, transmitter sites, and who owns the station. New schedule: 0700-1700 on 11965, 11685; 1700-0700 on 5040, 6015 (RNMN)

SAUDI ARABIA (non) Holy Medina Radio, 7205 best at 2000-2100 though co-channel VOA in Turkish; sounds no holier than Saddam Hussein and I suspect it's an Iraqi clandestine (Dave Kernick, UK, BDXC, *Communication*)

SEYCHELLES English from FEBA changed to: 1500-1555 daily on 11685; 1500-1600 Tuesday-Saturday on 9810, 15330 (Arthur Cushen, New Zealand; and Alok Das Gupta, India, *Australian DX News*)

SWEDEN Radio Sweden continues to bump its programs around without notice. For a while on the Wednesday 1530 broadcast on 17870, 21500, *MediaScan/Sweden Calling DXers* moved back to Tuesdays, seemingly at least a brief segment every week, sometimes with George Wood contributing remotely from vacation in California.

TAIWAN BCC News Network now scheduled on SW: 0100-4000 on 7295, 2100-1700 on 9610, 2100-2400 and 0900-1700 on 9765, 2100-1700 on 11725 and 11845, 2200-0100 on 15270. Popular Network at 0100-0900 on 9280, 2100-1700 on 11885 and 15125; also relayed via WYFR (Takashi---, Asian Broadcasting Institute via Radio Japan *DX Corner*)

TANZANIA Radio Tanzania, Dar-es-Salaam no longer uses SW for any domestic service. Only 9685 is used for external service, but is often off or has carrier only. Same goes for parallels 1035 or 837 kHz and 89.9 MHz. Current sked: 0330-0430, 0900-1040 (Sat. and Sun. to 1530), 1530-1915; see also ZANZIBAR (Maarten van Delft, Holland, visiting Tanzania)

TURKEY VOT resumed its North American service earlier than expected, Jan. 5, back on 9445 with English at 2300 and 0400, Turkish in between; planned new 500 kW transmitter (George Poppin, CA, W.O.R.)

UKOGBANI BBC began third daily *Newshour* in February, at 0500—along with equally-spaced 1300 and 2100 GMT, worst possible timings for people working normal business hours in UTC-5 zone, 8 am, 4 pm, midnight. Half-hour *Newsdesks* at 0400 and 0600 replaced by shorter news on the hour, and some features in the 0500 hour shifted earlier or later; *World Today*, Tuesday-Saturday 0615; some other favorite programs changed other timings to: *Letter from America*, Sats. 1015,

Suns. 0615, 1645, 2230; *Waveguide*, Sats. 1030, Weds. 0415, Thurs. 0130. *From Our Own Correspondent*, Sats. 1830, Suns. 0330, 0730; another edition, Weds. 2315, Thurs. 0445, 0915 (*London Calling*) Plans are for this to be absorbed into a new World Service 100-page consumer magazine to be sold on newsstands (*Broadcast* via Clive Jenkins, WDXC Contact)

URUGUAY unID on 6076.0 at 0000-0105 abrupt sign-off mentioned Internacional (Vashek Korzinek, RSA, via Dario Monferini) Radio Integracion Americana is a new external service via CXA-61, Radio Libertad Sport on 6045 daily at 1200-1400 and 0000-0100, shifting one hour later from end of DST March 15; for the Southern Cone with Uruguayan music, and on Fridays news in Spanish, Portuguese, and English; also relayed by La Voz de Artigas, 6075 at same times (Roberto Robelo, Uruguay, RN *Radio-Enlace*)

USA *World of Radio* schedule changed to: WRNO, UTC Sunday 0100 on 7355 (may move later if Radio Miami expands), Sunday 2130 on 15420; on WWCR, Friday 2130 on 17525, UTC Monday 0630 on 7435, UTC Sunday 0405 on 7435 (both may shift to the 5.8-5.9 MHz range), Monday 2200 on 15690. WWCR has added a program in Punjabi (not even used by VOA), *Radio Khalistan*, Mondays 1215 on 15690, 2330-2400 on 12160 (gh). WWCR puts a mixing product on 8935, a sesqui-MHz separation between 5935 and 7435, Glenn mixing with gospel and Gene (Mitch Sams, MO, FT)

Besides UTC Sundays 0435-0530 on 7435, *Signals* is repeated UTC Mondays 0705-0800 on 7435.

Since WWCR did not have enough time available when needed, Radio Miami International consolidated its nightly Cuban programming on WRNO instead of WWCR. RMI also plans to start a weeknightly English half-hour, *Miami Live*, at 0430 on 7465, perhaps as early as Feb. 24 depending on sponsorship; much like Jeff White's previous Radio Earth and Santo Domingo shows, including DX news (W.O.R.)

KA2XAU, experimental station heard on 1620 kHz, sent a copy of its FCC license which also shows SW frequencies authorized for 250 Watts ERP: 9715, 11705, 15300, 17745; location is Gilbertsville, Montgomery County, PA (via Daniel Hanington, Ont., *DX Ontario*)

WMLK, Bethel, PA, 9465, expanded schedule to: 0400-0900-1700-2200 except Saturdays (Marcel Rommerts, Holland, *Play-DX*)

VOA Tibetan at 0100-0115 has added frequencies, now on 7180, 9530, 15165, 17855, 21570 (Kim Elliott, VOA, W.O.R.) I sometimes run a test with special program source between 0700 and 1000 on 11925; QSLs still available for this and regular schedule (John Vodenik, VOA Bethany, *SW Echo* via Kirk Baxter)

(non) AFRTS via Barford St. John, near Banbury, Oxfordshire, England, may use one or two of these LSB frequencies at a time: 5247.3, 5376.8, 7443, 7571.8, 8975.5, 9242.3, 9334.3, 9929.3, 10537.8, 12651.3, 13651.3, 16041.2, 16541.4, 19918.4 (Richard B. Langley, Canada, via Risto Kotlampi, Finland, *SW Echo* via Kirk Baxter)

KOHI, St. Helens, OR, heard on 2nd harmonic 3200 until 0100 (Bill Flynn, OR, W.O.R.)

VATICAN VR English at 0250 on 6095, 7305, one replaced by 9605 from March 1 (W.O.R.)

VENEZUELA Radio Occidental, Zulia state, heard at 2338-2359 on 2nd harmonic 3160 (Jairo Salazar, Valencia, Venezuela, via Dario Monferini)

ZANZIBAR R. Zanzibar facilities in bad shape, but Chinese crew working on repairs. 6015 transmitter failed, so the one for 11734.2 moved to 6015. Hoped soon to be back as usual: 6015 at 0300-0500, 1100-2000; 11734.2 parallel at 1530-1830, the latter meant for Zanzibarians in Oman and Muscat; plans to add English and Arabic on this, and increase to 18 hours per day (Maarten van Delft, Holland, visiting Zanzibar, *World of Radio*)

Broadcast Loggings

Thanks to our contributors -- Have you sent in YOUR logs?
Send to **Gayle Van Horn**, c/o Monitoring Times.
English broadcast unless otherwise noted.

0026 UTC on 6210

ITALY: European Christian Radio. Italian. Good signal quality for blues and soul music. Contemporary pop Christian vocals to time pips signal at 0100 UTC. Two male DJs chat with ID included. (Chris Meloche, London, Ont., CN) Italy's RAI heard on 11800/9575 kHz at 0100 UTC. (Bob Fraser, Cohasset, MA) (Lawrence Lucas, Huntington, WV)

0040 UTC on 6090

LUXEMBOURG: RTV Luxembourg, Germany, DJ presents program of "Golden Oldies" from British rock groups. (Fraser, MA)

0045 UTC on 11720

BULGARIA: Radio Sofia. "Answering Your Letters" show discussing Bulgaria's police force and favorite television shows. (Fraser, MA) (Sam Wright, Biloxi, MS)

0100 UTC on 17770

NEW ZEALAND: Radio New Zealand. Casinos and New Zealand's television industry. "At the Beach" musical tune and national weather forecast. (Betsy Robinson, Clinton, TN) Monitored on 17770 kHz at 0305 UTC. (Richard M. Earnhardt, Charlotte, NC) (Rose Carmine, Sidney, OH)

0123 UTC on 3300

GUATEMALA: Radio Cultural. Religious vocals with guitar accompaniment. Additional Guatemalans audible for our DXpedition included: La Voz de Nahuala on 3359.9 kHz at 0208 UTC, Radio Chortis on 3380 kHz at 0228 UTC, and Radio Tezulutlan's religious sermon on 3370 kHz at 0231 UTC. (Maywoods, KY-DX Team)

0130 UTC on 11835.8

URUGUAY: Radio El Espectador. Spanish. Half-hour tune in with ID in progress and local time check. Promotional and Spanish vocal to sports coverage. (Brian Schaft, Berea, OH)

0145 UTC on 4895

COLOMBIA: La Voz del Rio Arauca. Spanish. Latin vocals and frequent local time checks. Identification and station promotional. (Maywoods, KY-DX Team) Colombia's Radio Nacional heard on 11822.4 kHz at 0241 UTC, with Latin pops, and IDs (Meloche, CN)

0216 UTC on 7415.5

UNITED STATES: Pirate-Whiskey Radio. Fair signal quality on Jackson 5 tunes. 60's classic tune "The Lion Sleeps Tonight," and Stampede music and station ID. (Meloche, CN)

0225 UTC on 4845

MAURITANIA: Office De Radiodiff.-TV De Mauritanie. Arabic. Fair signal quality for evening broadcast of announcer chat, and Arabic music. (Larry Van Horn, New Orleans, LA) Similar programming monitored at 2212 UTC on 4845 kHz in Arabic. (Maywoods, KY-DX Team)

0250 UTC on 3279.98

MOZAMBIQUE: E. Provincial De Sofala. Portuguese. Xylophone interval signal at tune-in. Sign-on station identification with brief announcement and African music. - Ed.

0300 UTC on 9645

NORWAY: Radio Norway Int'l. Interval signal, ID, news on the KGB. "Rock Box" show featuring Norwegian rock performers to 0329 UTC. (Nicholas P. Adams, Newark, NJ) "Norway This Week" on 11870 kHz at 1500 UTC. (Fraser, MA)

0300 UTC on 3277

MOZAMBIQUE: Radio Mozambique-Beira. Portuguese/English. Flute melody interval signal to multilingual IDs. Program chat and African music. No parallels of 3277/3210 kHz noted. (Frank Hillton, Charleston, SC) Radio Mozambique audible on 3210.5 kHz at 0300 UTC, with a 3-3-3 SIO (Signal strength, Interference, Overall quality) code. Announcer in local dialect, and native music. (Meloche, CN)

0325 UTC on 3215

SOUTH AFRICA: SABC. English/Afrikaans. Excellent signal quality for pop and "middle-of-the-road" tunes. Local program announcements and IDs. (Meloche, CN) Tentative ID for Capital Radio-Transkei on 7149.4 at 0400 UTC. English news and pop vocals. (Carmine, OH)

0351 UTC on 4939.6

VENEZUELA: Radio Continental. Spanish. Latin vocals to sign-off national anthem and identification. Venezuela's Radio Tachira heard on 4830 kHz at 2313 UTC. (Maywoods, KY-DX Team)

0404 UTC on 7270

SOUTH AFRICA: Radio RSA. Fair signal for news item on upgrading relations with Romania, followed by Louis Armstrong's "Hello Dolly" classic. (Mark Spat, W. Swanzey, NH) (Wright, MS) (Brian Bagwell, St. Louis, MO)

0730 UTC on 9545

SOLOMON ISLANDS: Solomon Islands Broadcasting Corp. National news and in-depth report on storm damage on the island. Jazz musical show to abrupt station sign-off. (John Carson, Norman, OK)

0733 UTC on 9585

ECUADOR: HCJB. National news and "Saludos Amigos" at 0739 UTC.

(Carson, OK) News, ID, sports, and features "Studio 9" and "Happiness Is," heard on 15270 kHz at 1900 UTC. (Adams, NJ) (Lucas, WV) (Fraser, MA) (Wright, MS)

0855 UTC on 4790

PERU: Radio Atlantida. Spanish. Latin pops, station promotionals and IDs. (Meloche, CN) Peru's Radio Eco heard on 5097 kHz at 0901 UTC, with Latin vocals and signal interferences. - Ed. (Wright, MS)

0900 UTC on 9815

ALASKA: KNLS. English/Russian. Male/female broadcasters with chat and "K-N-L-S" identification. Russian programming announcements and music. (Meloche, CN)

0900 UTC on 5950.2

GUYANA: Voice of Guyana. International news topics of USA and the new Russian republics. Station ID as "Voice of Guyana," and local Georgetown time given at 6:30. More announcer chat and area commercials. Monitored to 0945 UTC. (Bagwell, MO) (Spat, NH)

1100 UTC on 3324.8

GUATEMALA: Radio Maya. Spanish/Local dialect. "Radio Maya" ID and local morning announcements. Organ/marimba music program with good signal quality. (Robinson, TN) Station audible at 1130 UTC on parallel frequency 2360 kHz. (Bagwell, MO)

1314 UTC on 3381

MALAWI: Malawi Broadcasting Corp., tribal drums and talk in local African dialect. Similar programming format monitored on two consecutive evenings at 0310 and 0319 UTC on 3381 kHz. (Meloche, CN) Thanks Chris, Malawi not reported often. - Ed.

1600 UTC on 15445

BOTSWANA: VOA Relay. Fair signal quality for ID "African Service of VOA," followed by "Dateline Africa." (Meloche, London, Ont., CN) Call signal, ID, and news monitored on 11895 kHz at 2300 UTC. (Adams, NJ) Monitored on 7255 kHz at 0335 UTC with gospel music and IDs. (Carson, OK) English service heard on 11895 kHz at 2300-2345 UTC. (Earnhardt, NC)

1900 UTC on 9746

BAHRAIN: Radio Bahrain. Arabic. Arabic music to news and clear station ID as, "Iza'at Bahrain." (Stephen Price, Conemaugh, PA) Let us know if you QSL Radio Bahrain! - Ed.

1915 UTC on 12095

UNITED KINGDOM: BBC World Service. News and commentary continued with parallel 9410 kHz audible. VOA Relay heard on 11710 kHz at 2130 UTC, with reports on Africa. (Fraser, MA)

2018 UTC on 7465

ISRAEL: Kol Israel. "Calling All Listeners" show, and discussion on Israel's relations with China. (Fraser, MA)

2130 UTC on 4750

CAMEROON: Cameroon Radio TV-Bertoua. Tentative ID on this weak signal. English language program with international news topics fading intermittently. -Ed. CRTV-Yaounde heard in French on 4850 kHz at 2208 UTC. (Maywoods, KY-DX Team)

2135 UTC on 11620

INDIA: AIR. Music program of Indian artist. Poor signal quality noted on parallel frequencies 9910/9950 kHz. (Fraser, MA) Programming also heard on this frequency 2202-2225 UTC, with cultural features. (Spat, NH)

2145 UTC on 5025

BENIN: Office De Radiodiffusion Et TV Du Benin-Parakou. French. Announcer talk and "ici Parakou" heard amid lengthy station ID. African and pop vocals audible to 2155 fade out. -Ed. ORTB-Benin also monitored on 4870 kHz at 2215 UTC by the Maywoods, KY-DX Team.

2214 UTC on 4915

GHANA: Ghana Broadcasting Corp. English/Vernacular. African pop music, with brief announcer items. (Carson, OK) Station ID at 2245 UTC, and news on Ghanaian Deputy Foreign Minister. (Spat, NH) Monitored on 4915 kHz at 2227 UTC, to English service at 2300 UTC. (Maywoods KY-DX Team)

2215 UTC on 15475.73

ANTARCTICA: LRA36 Radio Nacional Arcangel San Gabriel. Spanish. Fair signal quality audible for several consecutive evenings, with announcer's chat and multilingual announcements. Spanish vocals monitored to closing ID/frequency quote to sign-off at 0000 UTC. (Meloche, Ont. CN) Station broadcast from M-F 2100-2300 UTC and welcomes reception reports, but please don't forget the return postage for your QSL! Station address: Base Antartida Esperanza, c/o Comando de Comunicaciones Comando en Jefe del Ejercito. C.P. 9411, Antartida, Argentina. - Ed.

2245 UTC on 4770

NIGERIA: Radio Nigeria-Kaduna. Station ID and time check at tune-in. Musical tribute to Otis Redding, news on census program. (Spat, NH) Radio Nigeria-Lagos heard on 4990 kHz at 2230 UTC, on Nigeria's economy, and Public Service Announcements. (Bagwell, MO) Voice of Nigeria audible on 7255 kHz from 0500-0540 UTC. (Earnhardt, NC)

2342 UTC on 15460

PHILIPPINES: FEBC Radio International. English/Tagalog. Easy-listening music and station jingle at 0000 UTC. Children's musical chorus. (Meloche, CN) Radio Veritas Asia audible on 15140 kHz, with 1500 UTC sign-on. Signal fair/weak for vocals and national news. (Hillton, SC) (Frenz, WI)

Utility World

Larry Van Horn
c/o MT, P.O. Box 98
Brasstown, NC 28902

Mapping the Republics

The other day I got in one of those nostalgic moods. When you look back on it, 1991 was one heck of a year for those of us who monitor the utility bands.

The war in the gulf, the reorganization of the maritime bands, the attempted coup in the then Soviet Union, the demise of the Soviet Union, all these things kept most of us glued to our shortwave radios and the utility bands to keep abreast of what was happening.

In fact, one of the big news stories recently has really kept map makers and your Utility World editor busy trying to keep up with the changes going on in the old Soviet Union. It is now called the Commonwealth of Independent States.

What got me on this track was last month's column. After I put last month's issue to bed, I got to thinking about some of the statements that I made in the loggings section concerning what to call locations of stations from the old Republics of the Soviet Union. So I started doing some research.

Historically, depending on which radio club you belonged to, the Soviet Union was tallied for country-counting purposes in only two ways. SPEEDX counted the Soviet Union as one country and that was it. However, those ingenious amateur radio operators at the ARRL (American Radio Relay League) and the SWL's of NASWA counted each republic as a separate country. Well now it is time to take a look at the 15 new countries that used to comprise the old Soviet Union. Let's take a look at the breakup as it applies to different utility station locations that are currently on the air.

Russia: Capitol—Moscow; Population—146 million, 82.6% Russian; Land—6.6 million square miles.

This is the dominant area in Russian and Soviet history, stretching across the entire Eurasian land mass, from the Baltic Sea to the Sea of Japan. Home of President Boris Yeltsin. It should be noted that Russia has an imaginary line drawn through it that divides this country into two

distinct areas bordered by the Ural mountains. Some country lists use this imaginary line to divide Russia into European/Asiatic components. Since this seems to be a very common practice, I will list the utility stations of Russia the same way.

The following are the locations of utility stations in European Russia. These include: Arkhangelsk, Astrakhan, Belomorsk, Kaliningrad, Krasnodar, Kuybishev, Makhachkala, Mezen, Moscow, Murmansk, Nar'yan Mar, Rostov-na-Donu M., St. Petersburg (old Leningrad), Syktyvkar, Vaygach.

Broadcast transmitters for the Soviet SW broadcast services can be found at Arkhangelsk, Armavir, Gorky, Kalach, Kalinin, Kazan, Kingisepp, Kursk, Moscow, Murmansk, Orenburg, Petrozavodsk, St. Petersburg, Ryazan, Syktyvkar, Tula, Ufa, Vologda, Voronezh, Zhigulevsk.

The most prolific location in Russia for utility stations is, of course, the old Soviet capitol of Moscow. I am sure that Boris Yeltsin is a happy man to have most of the utility communications infrastructure on Russian soil. I do question from time to time whether locations listed in different utility publications attributed to Moscow are accurate. My monitoring has indicated that some of these stations listed as Moscow are probably coming from other areas of the old Soviet Union.

In fact, it would not surprise me if some of the transmitter sites for Radio Moscow SW broadcasts might also be the transmitter sites for some of the TASS press frequencies listed as Moscow. Given that, I have included a list of transmitter sites for SW broadcast entities from the various locations throughout the old Soviet Union. Chances are these are the true locations for some, if not all of the TASS press service broadcasts, instead of Moscow. One list I have seen lists Moscow as the sole source of TASS broadcasts!

In the Asian portion of Russia several utility stations have been reported. These include: Aleksandrov-Sakhalinskiy, Anadyr, Chelyuskin, Irkutsk, Juzno, Khabarovsk, Kholmok, Komsomolsk-na-Amure, Korsakov, Krasnoyarsk, Magadan, Nakhodka, Nevelsk, Novosibirsk, Omsk, Okhotsk, Petropavlovsk-Kamchatsky, Poronaysk, Provideniya, Serdtse-Kamen, Severo-Kurilsk, Sverdlovsk, Tevriz, Tiksi, Tyumen, Ulegorsk, Valentin, Vladivostok, Yakutsk, Yeniseysk, Yuzhno-Sakhalinsk.

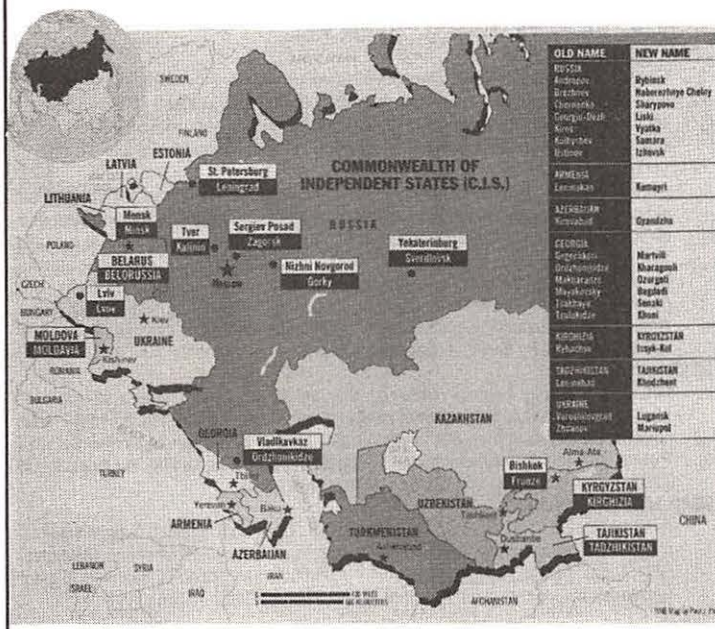
Broadcast transmitter sites include: Anadyr, Blagoveschensk, Chita, Dudinka, Irkutsk, Kenga, Khabarovsk, Khanty, Komсомolsk-na-Amure, Krasnoyarsk, Kyzyl, Magadan, Mansiysk, Nikolayevsk-Na-Amure, Novosibirsk, Omsk, Palana, Petropavlovsk-Kamchatskiy, Sverolovsk, Tyumen, Ulan Ude, Vladivostok, Yakutsk, Yuzhno-Sakhalinsk.

Now let's look outside of Russia at the other 14 countries that made up the old "evil empire" (as one President put it). The next ten countries are all part of the new Commonwealth of Independent States. I have listed each new country (with its new spelling as applicable). I understand, based on press reports, that the State Department now reports over 48 spelling changes involving cities and old republic names. If I can get that information I will pass it on.

Moldova (formerly Moldavia): Capitol—Kishisnev; Population—4.4 million, 63.9% Moldavian; Land—13,000 square miles.

This old republic was formerly included as part of Romania. Moldavia was annexed by the Soviet Union in 1940. Other than a Soviet SW broadcast site at Kishisnev, I know of no utility stations operating from Moldova.

Ukraine: Capitol—Kiyev; Population—51.7 million, 73.9% Ukrainian; Land—231,990 square miles.



The Ukrainian SSR was proclaimed in December 1917 and was established in December 1919. Utility station locations include: Donbass, Feodosiya, Izmail, Kherson, Kiyev, Mukachevo, Odessa, Sevastopol, Taganrog, Yalta, Zhdanov. Broadcast transmitter sites within Ukraine include: Ivano Frankoysk, Kanev, Kharakov, Kiyev, Lvov, Nikolayev, Simferopol, Starobelsk, Uzhgorod, Vinnitsa

Armenia: Capitol—Yerevan; Population—3.3 million, 89.7% Armenian; Land—11,490 square miles.

This state was proclaimed a Soviet Republic in November 1920. The only location in the country with a utility station and broadcast transmitters is the capitol of Yerevan.

Turkmenistan (formerly Turkmenia): Capitol—Ashkhabad; Population—3.5 million, 68.4% Sunni Muslim Turkmenians; Land—186,400 square miles.

The Turkmen SSR was formed in October 1924. Krasnovodsk is the only known location of a utility station in this new country. The capitol at Ashkhabad has the only known broadcast transmitter facility in the country.

Azerbaijan: Capitol—Baku; Population—7 million, 78.1% mostly Shiite Muslim Azerbaijani; Land—33,340 square miles.

Azerbaijan was declared a Soviet Republic in 1920. Baku has several utility station outlets heard on HF recently as well as a broadcast transmitter site.

Belarus (formerly Byelorussia): Capitol—Minsk; Population—10 million, 79.4% Byelorussian; Land—80,134 square miles.

Established as a Soviet Republic in January 1919. Minsk will be the new capitol of the Commonwealth. Minsk also has several utility station outlets and we might see a few more show up if the Commonwealth holds up. Broadcast transmitters are located at Minsk and Orsha.

Uzbekistan: Capitol—Tashkent; Population—20 million, 68.7% Sunni Muslim Uzbek; Land—172,741 square miles.

The semi-independent Khanates of Khiva and Bokhara became the Uzbek SSR in October 1924. Tashkent and Khiva both have utility sites heard frequently in the shortwave spectrum. Khiva is the site of a major Russian naval communications station. It should be interesting to see if that station remains on the air given the fact that Russia is trying to take over the old Soviet Navy. Broadcast transmitters are located at Tashkent, Andizhan and Gulistan.

Tajikistan (formerly Tadjikistan): Capitol—Dushanbe; Population—4.8 million, 58.8% Sunni Muslim Tadjiks; Land—55,240 square miles.

The Tadjik republic was admitted to the Soviet Union in December 1929. Dushanbe has only one utility station that I could locate. This country might not be too active on the utility bands. The only broadcast transmitter on SW originates from the capitol, Dushanbe.

Kazakhstan: Capitol—Alma-Ata; Population—16.5 million, 36% Sunni Muslim Kazakhs; Land—1,049,155 square miles.

The Kazakh republic was formed from Uralsk, Turgai, Akmolinsk and Semipalatinsk provinces in August 1920. The capitol Alma Ata has several stations on the air including a meteo service. An additional utility station is located at Aktyubinsk. Broadcast outlets for Kazakhstan are located at Alma-Ata, Chimkent, Dzhambul, Guryev, Kokchetav, Kyzylorda, Pavlodar, Semipalatinsk.

Kyrgyzstan (formerly Kirgiziya): Capitol—Bishkek; Population—4 million, 47.9% Sunni Muslim Kirgizian; Land—76,460 square miles.

It appears that like Moldova, Kyrgyzstan is not currently active on the utility bands. You might be able to log this new country through its SW broadcast station located in Frunze, Naryn or Osh.

These republics have not been incorporated into the Commonwealth of Independent States:

Estonia: Capitol—Tallinn.

Both the capitol Tallinn and one station at Parnu can be heard on the utility bands. Tallinn has the only known SW broadcast transmitter.

Latvia: Capitol—Riga

This Baltic state has three utility station locations that include Liepaja, Riga (the capitol) and Ventspils. Riga has the only known shortwave broadcast transmitter.

Lithuania: Capitol—Vilnius

I could only find one utility band outlet for this country and that was in Klaipeda. Shortwave broadcast transmitters are located at Kauna and Vilnius.

Georgia: Capitol—Tbilisi; Population—5.5 million, 68.8% Georgian; Land 27,000 square miles.

This state declared independence in 1918 but was invaded by the Soviet military and proclaimed the Georgian Soviet Socialist Republic in 1921. In recent weeks this new country has been racked by civil war. I have found three locations that have utility stations operating. These locations are: Tbilisi, Batumi and Sukhumi. Tbilisi and Sukhumi both have broadcast transmitters.

Only time will tell what the utility scene will look like in the future from the old Soviet Union. Will stations move from the old republics back to Russia? We shall see.

FIDONET and WLO!!

One of the more interesting places to get information on utility listening is on the Shortwave Echo via Fidonet. If you have a modem and a computer and access to a Fidonet Bulletin Board System in your area, that is all you need. If your local BBS doesn't have the Shortwave Echo, ask the Sysop (System Operator) to pick it up off the Fidonet Backbone.

To give you an example of what comes across this interesting network, I have included this month the newest schedule from WLO Mobile Radio provided by Tim Johnson. Tim copied this information directly off-the-air from WLO on 8514 kHz. All frequencies listed are kHz.

If you want a QSL for reception of a WLO frequency, you can send your reports to the following address: WLO Radio; Mobile Marine Radio, Inc; 7700 Rinla Avenue; Mobile, AL 36619 USA 205-666-5110

Remember, in your reports do not divulge any details of the transmission. You don't want to be in violation of the Communications Act of 1934. Just give them the date/time/frequency and who they were communicating with. Also be sure to send them return postage to get your QSL back. These transmissions are of a private/commercial nature and these folks reply to QSL requests only out of courtesy. They are under no obligation to reply to any reception report. Let's return that courtesy by giving them some help with the return postage for your QSLs.

Full information on WLO is transmitted at 0200, 0800, 2000 UTC after the station sends its traffic list in CW. Morse code ship messages and weather traffic is passed on the following frequencies: 434, 2055.5, 4343, 6416, 8514, 12886.5, 17022.5, 22487.

WLO has several CW working frequencies. These include: 434, 2055.5 (keyed together), 4257.5, 6446.5, 8445.5, 8473.5, 8658, 12660, 12704.5, 13024.9, 16969, 17173, 22686.5, and 26123. 22318.5 and 22320 have been deleted from use. Between December 1 and May 31 each year, WLO brings up some additional working frequencies for CW. These include: 4462.5, 6344, 8534, 12992, 16997.6, and 22688.

Utility World

With the new WARC frequencies in effect in July of 1991, WLO guards the following ship CW frequencies:

Worldwide Channel 3	4184	6276	8368	12552
	16736	22280.5	25172	
Worldwide Channel 4	4184.5	6276.5	8369	12553.5
	16738	22281	25172	
Gulf of Mexico Channel 5	4183	6278	8367	12551
	16735	22281.5	25171.5	
Gulf of Mexico Channel 6	4183.5	6278.5	8367.5	12551.5
	16735.5	22282	25171.5	

WLO also provides ship telex information and services 24 hours a day. They also send weather information and traffic lists out using SITOR-B at 35 minutes past each hour on the following frequencies:

Hurricane season through 11/30:

4462.5 6344.0 8534.0 12992.0 16997.6 22688.0

Non-Hurricane season 12/01 through 05/31:

4343.0 6 416.0 8514.0 12886.5 17022.5 22487.0

WLO also has a full information broadcast (just like those on CW) on the above frequencies daily at 0235 0835 2035 UTC after the SITOR-B traffic list.

WLO full time NBDP (Narrow Band Direct Printing) SITOR-A Frequency Listings

ITU SHIP	All Freqs kHz	REMARKS
CHAN	TRANSMIT	RECEIVE (= indicates under construction)
405	4174.5	4212.5 DELETE
406	4175.0	4213.0
410	4177.0	4215.0
411	—	—
415	4179.5	4217.0 NEW FULLTIME SITOR-A - ADD TO WLO.
417	4180.5	4218.0 NEW FULLTIME SITOR-A - ADD TO WLO.
606	6265.5	6317.0
610	6267.5	6319.0
611	—	—
615	6270.0	6321.0 WARC-87 MOVED TO ITU CH. 624.

619	6272.0	6323.0	
624	6274.5	6325.5	NEW FULLTIME SITOR-A - ADD TO WLO.
805	8378.5	8418.5	DELETE. WLO MOVED TO ITU CH. 829.
806	8379.0	8419.0	
810	8381.0	8421.0	
811	8381.5	8421.5	DELETE. WLO MOVED TO ITU CH. 832.
815	8383.5	8423.5	
826	8389.0	8429.0	
829	8390.5	8430.5	NEW FULLTIME SITOR-A - ADD TO WLO.
832	8392.0	8432.0	NEW FULLTIME SITOR-A - ADD TO WLO.
1205	12479.0	12581.5	
1211	12482.0	12584.5	
1215	12484.0	12586.5	
1225	12489.0	12591.5	
1229	12491.0	12593.5	
1234	12493.5	12596.0	
1240	12496.5	12599.0	
1250	12581.5	12684.0	DELETE. WLO MOVED TO ITU CH. 1261.
1251	12502.0	12604.5	
1254	12503.5	12606.0	
1261	12507.0	12609.5	NEW FULLTIME SITOR-A - ADD TO WLO.
1605	16685.5	16809.0	
1611	16688.5	16812.0	
1615	16690.5	16814.0	
1625	16695.5	16818.5	
1629	16697.5	16820.5	
1640	16703.0	16826.0	
1644	16705.0	16828.0	NEW FULLTIME SITOR-A BEAMED TROP NORTH ATLANTIC.
1650	16708.0	16831.0	
1654	16710.0	16833.0	
1661	16713.5	16836.5	NEW FULLTIME SITOR-A BEAMED NORTH ATLANTIC.
1810	18875.0	19685.5 =	
2210	22289.0	22381.0	
2215	22291.5	22383.5	
2254	22311.0	22403.0	
2256	22312.0	22404.0	
2260	22314.0	22406.0	
2262	22315.0	22407.0	
2272	22320.0	22412.0 =	
2284	22326.0	22418.0 =	
2510	25177.5	26105.5	NEW FULLTIME SITOR-A

Well it is time to check out what you have been hearing in the world of the utility bands so on to this month's logs.

Utility Loggings

Abbreviations used in this column

AB	Air Base	LSB	Lower side band
AF	Air Force	MARS	Military Affiliate Radio System
AFB	Air Force Base	MENA	Middle East News Agency
AM	Amplitude Modulation	MS	Motor ship
ANG	Air National Guard	MV	Motor vessel
CAP	Civil Air Patrol	Mux	Multiplex
CANFORCE	Canadian Forces	NAS	Naval Air Station
CG	Coast Guard	Pics	Pictures
Comms	Communications	QRA	Request for station ID
COMSTA	Communications Station	RTB	Return to Base
CQ	General call for any station	RTTY	Radioteletype
CW	Continuous Wave (Morse Code)	RY	RTTY Test Characters
DE	From	SAM	Special Air Mission
Dept	Department	SAR	Search and Rescue
EAM	Emergency Action Message	SATCOM	Satellite Communications
ETA	Estimated Time of Arrival	SSB	Single Side band
FAX	Facsimile	TASS	Russian News Agency
GCCS	Global Command and Control	TFG	Tactical Fighter Group
GNA	Gulf News Agency	Unid	Unidentified
HF	High Frequency	US	United States
ID	Identification	USAF	U.S. Air Force
IRNA	Iraqi News Agency	USB	Upper Side band
KCNA	Korean Central News Agency	USCGC	US Coast Guard Cutter
		USN	US Navy

All frequencies in kilohertz (kHz), all times in UTC. All voice transmissions in English unless otherwise noted.

2370.0	Norwood, UK on unlisted frequency sending FAX Surface analysis and weather pics at 1835. (RGA-UK)
2654.5	USN Mars stations NNN0HWF and NNN0EDF with net at 0206 in USB. (Bill Battles-East Kingston, NH)
2707.0	German female PN number station in AM 0605. (Bill Fernandez-MA)
3036.0	Unid station 'Hotel' calling for any station in net at 0619 in USB. (Fernandez-MA)
3067.0	USAF McClellan AFB, CA GCCS with EAM broadcast at 0613 in USB. (Fernandez-MA)
4362.7	CCM-Chilean Naval Radio, Puerta Arenas with RTTY ID and 5 letter groups using 50 baud at 0407. (Robert Hall-Capetown, South Africa)
4373.0	Giant Killer working 3QV and 3WN regarding Starfighter-201 (F-14 Tail AB Side number 201) declaring an emergency at 2355 in USB. Aircraft contacting Giant Killer on 233.7 with aircraft to RTB NAS Oceana, VA. Giant Killer assigned 251.3 as a W-122 operating area discrete frequency. (Larry Fowler-Monument Beach, MA)
4417.0	Several voice station heard here at various times in USB including: Wellington Radio, Kerikeri Radio, Bluff Radio and Auckland Radio all in USB. (Gordon Trigg-Christchurch, NZ)
4513.5	NNN0KOA and NNN0TDC USN Mars with Okinawa net in USB at 0210. (Battles-NH)
4543.0	German female 3/2-digit number station in AM at 0616. (Fernandez-MA)
4562.5	JWT-Norsk Naval Radio, Stavanger with V CW marker at 1814. (RGA-UK)

4582.0	Sparrow 901, 6, 215 (Florida CAP) heard at 0144 testing new antenna in USB. (Battles-NH)	11233.0	Nominate working Trenton CANFORCE asking if loop was up at 1604 in USB. Moved to 13207. (Hay-ON) CANFORCE 1 (Prime Minister aircraft) working Trenton at 1937 in USB. (Battles-NH)
4601.0	ZLBC5-Campbell Island working phone patches via Wellington Radio in USB at 0900. (Trigg-NZ)	11282.0	San Francisco Radio working various flights between 1906-2124 in USB. (Gordon Levine-CA)
4739.0	Halifax Military working Rescue 1305 with Medevac comms at 0125 in USB. This is a new frequency for these guys. (Battles-NH)	11306.0	Rockwell working Saudi MS11 at 2153 with phone patch to Jeddah in USB> (Battles-NH)
4768.1	CCS-Chilean Naval Radio, Santiago with RTTY ID and 5 letter groups using 100 baud at 0414. (Hall-RSA)	11549.7	Raoul Island working phone patches with Wellington Radio receiving advice regarding labour contract bill in USB at 2117. (Trigg-NZ)
4855.0	BRV Liberty Star working Cape Leader with report of one solid rocket booster recovered from the sea in USB at 0139. (Battles-NH)	12682.5	PKF-Makassar Radio, Indonesia with CQ CW marker at 1301. (Dix-NY)
5015.0	German female 3/2-digit number station in AM at 0639. (Fernandez-MA)	12695.5	CNP-Casa Blanca Radio, Morocco with CQ CW marker at 1046. (Dix-NY)
5160.2	IER20-Italian Customs, Rome heard at 0457 using ARQ-M2 (Traffic-Larry?). (Hall-RSA)	12743.0	XDA-Radiomex, Mexico City with CQ CW marker at 1403. (Dix-NY)
5417.0	Spanish female 5-digit number station in AM at 0641. (Fernandez-MA)	12840.0	VTP-Vishakhaapatnam Radio, India with V CW marker at 1122. (Dix-NY)
5574.0	Navy Lima Xray 10 working San Francisco ARINC asked for frequency for Oakland (134.15). Aircraft was from VP-90 NAS Glenville, IL. (Henry Brown-East Falmouth, MA)	12843.0	HLO-Seoul Radio, South Korea with CQ CW marker at 1125. (Dix-NY)
5680.0	Harriet Lane called CG 1503 for ETA at scene in USB at 2237. (Ted Hay-Watford, ON) Cap Radio? working FOPJ with flight ops at 2159 in USB, handed off to 126.7. I could use some help in ID'ing this one. (Battles-NH) <i>No help here-Larry.</i>	13205.0	SAM 26000 with Secretary of State Baker on board to State Ops in USB at 0255. Discussing Middle East peace talks, passing dinner orders for the Bakers in Japan and requested 2 masseuses. Also gave SATCOM frequencies of 295.3 uplink and 261.7 downlink. (Rich-AZ)
5696.0	Unit 1715 working COMSTA Boston at 1454 in USB. "We're an Army platform at Sikorsky in Strafford, CT, request a HF comm check". (Battles-NH)	13207.0	Bolero working Calling Card & Necessity regarding take off times for the C-130s and C-141s in USB at 2111. (Fowler-MA)
5762.0	Spanish female 5-digit number station in AM at 0608. (Fernandez-MA)	13208.5	Stol 73 working Stewart enroute base at 1926 in USB. (Battles-NH)
6383.5	6VA-Dakar Radio, Senegal with CQ CW marker at 2315. (Jack Dix-Yonkers, NY)	13217.0	Skeptical (EC-135) working Andrews (AF-1 Comm Support) in USB at various times. Also used 11229 LSB, 13205 LSB. (Battles-NH)
6677.0	FRA3AK-BBS, Assume this is a French Pirate station, Being accessed by FRA1FB, FRA3AO and BN6DW at 1736 using 300 baud packet. There is a significant amount of illegal 'amateur' traffic on packet and SSB in Europe. (RGA-UK)	13312.0	Moody Ops working 4541F at 1939 in USB. Said there was no messages for the southern group, also heard base working X9C. Referred to this as channel 4. (Battles-NH)
6715.0	Moffett Rescue working AF rescue 199, 224, 372, 610, 611, 612, 624, 811, Blade 52, Stroke 00, Charlie Delta 037, Firehawk 06/12 and Army 212 an OH-58 Helo from Ft. Ord. Discussing sectors to be searched for SAR mission. Resumed the next day and Moffett gave air refuel freq of 263.5 and also using 123.5. (Dan Rich-Tempe, AZ) Caught Moffett and AF Rescue 224 working unid UK station in USB at 0352. (Brown-MA)	13351.0	Unid ground station working aircraft then moved frequency to 10096/8855 at 1633 in USB. Anybody have any idea who this might be. (Battles-NH) <i>Could be quite a few Bill, my guess is one of the South American stations as they use 10096/8855. The only station I have a listing for on the 13 MHz is Air France in Paris-Larry.</i>
6897.0	DOD Cape working King 1, 2, USS Jack Williams and USCGC Dependable at 2355 in USB. (Battles-NH)	13386.5	KKN39-State Dept Radio with CW QRA marker at 0530, parallel to 17431.1. (Szalony-CA)
7445.0	KPA2-Israeli Moshad number station in AM at 2216. (Fernandez-MA)	13410.3	RNK38/REB24-TASS news agency, Moscow with RTTY RY's and ID using 50 baud at 1720. (Hall-RSA)
7605.0	VLB2-Israeli Moshad number station in AM at 0146. (Leo Pointdexter Evans-St. Lucia) <i>Welcome to the column Pointdexter, hop you report often-Larry.</i>	13636.0	'C'-Single Letter HF Morse Code Beacon believed to be transmitting from Moscow at 1646. (Hall-RSA)
7624.0	Unid USAF Weather service FAX frequency heard at 1700. (RGA-UK)	13927.0	Ascension and Thule concluding MARS type comms at 2211 in USB. (Battles-NH)
7635.0	Blue Chip 13 working Kittyhawk at 1537 in USB (TN CAP). (Battles-NH)	14364.0	Sidacar working Agreeable, Nailhob and others asking about radar contacts in USB at 1657. (Hay-ON)
7806.0	YZD7-TANJUG news agency, Belgrade Yugoslavia with English language RTTY new bulletins (50 baud) at 2345. (Mark Burkhardt-New Orleans, LA) <i>For those who are interested, Mark is a regular on Fidonet with his RTTY intercept reports. thanks Mark, always a nice job-Larry.</i>	14386.0	BZP54-Xinhua, Beijing with English language RTTY news items (75 baud) at 0845. (Burkhart-LA)
7918.0	YHF-Israeli Moshad number station in AM at 0402. (Fernandez-MA)	14452.0	HMF57-KCNA Pyongyang, North Korea with English language RTTY news items plus RY test tape including call signs at 0800. (Burkhart-LA)
8490.0	AQP-Karachi Naval Radio, Pakistan with V CW marker at 2247. (Dix-NY)	14470.0	NNNOCFM working NNN0FMN with phone patch traffic in USB. Anybody know who CFM is? (Sewell-NJ)
8690.0	FJY4-St. Paul & Amsterdam Island Radio with CW CW marker at 1202. (Dix-NY) Very nice catch Jack, not reported very often-Larry.	14487.0	English female 5-digit number station in AM at 1629. (Hall-RSA)
8701.0	UNM2-Klaipeda Radio, Lithuania with CQ CW marker at 0001. (Dix-NY)	14547.0	JAL44-Kyodo news agency, Tokyo with English RTTY (50 baud) news bulletins at 0740. (Burkhart-LA)
8981.0	Sheppard Rear working Sheppard Forward requesting they use a AS-2259 directional antenna in USB at 1725. (Rich-AZ)	14764.0	A9M70-GNA Bahrain with Arabic RTTY (50 baud) news bulletins at 0515. (Burkhart-LA)
8984.0	R41 (US Navy aircraft) working COMSTA Boston/Miami in USB at 0133. Aircraft found out real call sign should have been N51. (Preston Sewell-Franklin, NJ)	15935.2	SUA291-Mena news agency, Cairo with RTTY (50 baud) English news bulletins at 1745. (Hall-RSA)
9006.0	Andrews working AF-1 at 2020 in LSB. Bet Trenton Military loves this QRM. (Battles-NH)	15970.2	KKN50-State Dept radio with QRA marker in CW at 0028. (Szalony-CA)
9023.0	Bigfoot working Challis Bravo and Darkstar Oscar in USB at 2235. Also heard them on 364.2 (Rich-AZ) Agora-46 working Agora Control (F-16 158th TFG Vermont ANG) regarding inbound status (Norad exercise in W-102) at 1822 in USB. (Fowler-MA)	16067.0	IRO30-ANSA news agency, Rome with RTTY (50 baud) news agency English news bulletins heard at 1733. (Hall-RSA)
9025.0	2 calling 1 with wierd comms at 1910 in USB. 1 was on the flightline and 2 was a temp base and about to break the station down. Smugglers/Spooks? (Battles-NH)	16279.5	CLP1-Prensaminrex, Havana with RTTY (50 baud) Spanish news bulletins at 1746. (Hall-RSA)
10071.0	'T' Single letter HF CW beacon heard at 1704. (Leonard Szalony-Fontana, CA)	17011.0	XSX-Keelung Radio, Taiwan with CW CQ marker at 1123. (Dix-NY)
11053.0	SAM 28000 working SAM 29000 and Andrews giving radio checks. At 2341 SAM 28000 called Crown to inform that the call sign had changed to AF-1, also heard on 415.7. (Rich-AZ)	17170.4	ZLW-Wellington Radio, New Zealand with DE CW marker at 1130. (Dix-RSA)
10780.0	Agar 92 (KC-135) working Antigua Radio enroute Ascension at 2254 in USB. (Battles-NH)	17260.0	WAF8389 M/S Mitchell working High seas operator in USB at 2122. (Evans-St. Lucia)
11201.0	CG 6009 working COMSTA Boston at 1627 in USB, secondary 15015. (Fowler-MA)	17431.1	KKN39-State Dept Radio with a QRA CW marker at 0535. (Szalony-CA)
11214.0	CG Rescue 1712 working CG San Juan, PR with SAR of M/V Sinbad in USB at 2259. (Battles-NH)	17992.0	Cock Fight working Neon Gas at 0053 in USB with phone patch from Pacific SAC test. (Battles-NH)
11214.0	Hawk-01 working Raymond 01 at 1612 in USB. Says this channel is Charlie 06. (Fowler-MA)	18266.0	ZA6-ATA Tirana with RTTY (50 baud) Calls and RY's at 1259. (RGA-UK)
11215.0	Devil Ops, Time 17, Devil Ops 2 and Aerosmith heard in USB at 1436. (Battles-NH)	18400.0	Andrews working SAM60206 at 1641 testing various antenna sites in USB. (Battles-NH)
11217.0	German Navy 4711 working DHM91 at 2001 enroute Schleswig AB in USB. (Battles-NH)	19980.4	9BL33-IRNA, Baghdad using 50 baud RTTY with English news bulletins at 1514. (Hall-RSA)
		20185.8	Phone patch from Patrick AFB, FL to Ascension Island on the MUX using USB at 2046. This is one half of the duplex, the other half is on 19954.8. (Battles-NH)
		20747.0	Collins-Rockwell (Call sign Liberty) 24 hour radio net working what appeared to be USAF personnel in Honduras (Call sign Trena?) with some very interesting comms in USB at 1700. (SKG-CA)
		20991.6	'B' Single letter CW HF beacon heard at 0146. (Szalony-CA)
		20991.7	'C' Single letter CW HF beacon heard at 0145. (Szalony-CA)
		20991.8	'F' Single letter CW HF beacon heard at 0145. (Szalony-CA)
		20991.9	'S' Single letter CW HF beacon heard at 1455. (Szalony-CA)

The Scanning Report

Bob Kay

c/o MT, P.O. Box 98
Brasstown, NC 28902

Shack Improvements

If you're an experienced scanning buff, you probably have a specific area in your home that is dedicated as an official "listening post." It could be an entire room, a small corner, or even a closet.

The actual location of your listening post isn't critical. It's more important to concentrate on keeping it organized. A neatly laid out and tidy area will provide you with hours of scanning enjoyment. Here are a few hints and ideas that will help you to arrange your listening post and give it a professional appearance.

Tagging Along

Listeners who use several scanner radios should tag all power cords. A combination cable/tie marker can be purchased from Radio Shack, catalog #278-1648. During an emergency, you'll be able to instantly identify and disconnect a specific radio from its power supply.

It's also a good idea to tag your antenna coax cables. This is especially important when using a combination of indoor/outdoor antennas. During a thunderstorm, the tagged lines that are fed by outside antennas can quickly be disconnected.

Suppose for a moment that you detect a small spark, or trail of smoke near your equipment. Could you turn off the power by merely pushing a button or flipping a switch? If not, you may want to install a single switch that can interrupt the power during an emergency.

The easiest and most economical method of controlling your shack's power is to install a surge protected plug board. For a more professional look, consider using a computer power center box. Computer power centers offer surge protection that is neat, compact, and affordable. To see the various models that are available, visit your local computer store.

Writing on the Wall

A small, plexiglass panel will add an elegant and professional look to your listening post. White-colored plexiglass can be an excellent place to jot down newly discovered frequencies. Panels that are illuminated provide a custom note pad that can be used in complete darkness. Multi-colored, dry erase markers (available in art supply centers) are ideally suited for this purpose.

Large sheets of colored plexiglass can be purchased from glass dealers. Small scrap pieces of plexiglass can be obtained from sign making shops. Many of the larger shops will gladly give you their scrap cuttings. If you visit a sign making shop, don't insist on new plexiglass. Old plexiglass, taken from commercial signs, can be restored by scrubbing with a mild abrasive. One proven way to brighten colored plexiglass is to use automotive compound paste available at automotive and department stores nationwide.

Organizing Your Frequencies

Computers have made it easy to store a large frequency database on a single disk. My two favorite frequency data base programs are "RAC" and "Radiolog." Both programs can be downloaded from BBS boards. If you can't find the programs, send a blank, formatted disk with return postage to the Scanning Report, P.O. Box 98, Brasstown, NC 28902.

Scanner buffs who don't have a computer shouldn't feel neglected. A large frequency data base can be stored in a handwritten frequency



Whether you own two receivers or many, a well-organized shack can give it that "professional touch." Jim Sutton, N2OPS, of Mt. Morris, NY, finds organization essential as he sells two-way and scanning receivers at Christiano Hardware, directs "On the Road Youth Ministry," and participates in ARES, ARRL, and REACT activities.

log. A log book has certain advantages that no computer can match. For example: A single, specific frequency can be found much faster by using a log book. And log books don't "crash." You won't lose hours or weeks of work to a mechanical or electrical failure.

The "DOME" book-keeping log contains ruled and blocked pages that are ideally suited for logging frequencies. There's also room for brief descriptions and related notes. The complete line of Dome record-keeping books can be found in your local stationary or department store.

Sitting Easy

Every listening post should have a comfortable chair. But not so comfortable that you fall asleep during nightly scanning sessions. A small, secretarial chair, with a thickly padded seat, is the recommended choice.

Other items that should be in your listening post include: 1) A small desk lamp with an adjustable neck. 2) A current issue of *Police Call* and other local frequency reference books. 3) A battery operated clock—it's one less power cord to plug in. 4) A pad and pencil for taking notes. Keep a soft eraser handy for making last minute corrections to your notes. 5) Readers living in areas that have frequent power outages, should have a fresh set of alkaline batteries. When the power fails, use the batteries to power your hand held.

Organizing a listening post can be a lot fun. If you take your time, and use the hints that have been provided, you'll have a professional listening post that will be the envy of fellow scanner buffs.

Frequency Exchange

Welcome to the newest, high tech, maximum security prison in the nation. As some of you probably know, we're standing outside of El Dorado State Prison in *Shawnee, Kansas*. Here are the operating frequencies: 154.65, 155.07, 155.13, 155.31 and 155.64. Voice opera-

tions were also monitored on 170.64 and 170.70. (Submitted by Charles Knowles, Shawnee, Kansas.)

Since we're already in Kansas, let's visit with Andy Barber, in **Johnson County**.

44.940	Highway Patrol Troop A
45.180	"
151.235	Johnson County Park Patrol
156.210	Blue Valley Schools
158.820	Metro Emergency Radio Systems
461.850	Plaza Security
461.950	Corporate Woods
464.050	Danguard Security
464.125	Security Patrol
464.675	J. C. Penny Warehouse

Ready to take a ride with the **Missouri State Police**? If so, John Dicampo has provided us with the required frequencies.

42.120	42.220	42.320	42.380
456.4750	repeats 42.32/42.22		

Are you interested in military air? John Holtz, lives in **Huntington Beach, California**. Here are a few of his favorite military air frequencies.

211.9400	El Toro Tower	291.8000	Edwards, pilot to maint.
228.6000	Squadron Operations	300.4000	San Diego military approach
236.6000	Edwards Tower		
264.8000	Shuttle Chase Planes	305.5000	El Toro Final
267.9000	Edwards Range Control	321.9000	Camp Pend. air to ground
270.1000	Nellis ATIS	336.9000	Camp Pend. tactical

John's complete list contains nearly 300 military frequencies. If you want the complete list, send \$2.00 dollars with a #10 SASE to the Frequency Exchange, P.O. Box 98, Brassstown, NC 28902.

According to Eric Lively, the city of **Shreveport, Louisiana**, can provide scanner buffs with hours of non-stop scanning action. Let's take a peek at Eric's favorite frequencies:

450.150	KSLA channel 12	453.700	"	"#8
450.350	KWKH radio	453.800	"	"#2
450.450	KSLA Channel 12	453.825	"	"#4
453.050	Police channel #7	453.900	"	"#1
453.450	" "#5	453.950	"	"#3
453.550	" "#6	464.500	Pierre Bossier Mall Security	

All aboard! Here are a few of the railroad frequencies for the **Hartford/Central Connecticut Railroad**.

160.65	Providence & Worcester
160.80	Conrail road #1
160.92	Amtrak (Hartford line)
161.03	Conrail maintenance of way
161.07	Conrail road #2
161.16	Boston & Maine, dispatcher to train
161.40	Springfield terminal (Boston & Maine in CT)
161.52	Boston & Maine, train to dispatcher

The above frequencies were submitted by Mark W. Gardner. Mark also wants everyone to know that there is a "talking" defect detector in Windsor, on the Hartford line. The detector broadcasts the temperature in Windsor every few minutes.

Ready for a bus ride through **Queens, New York**? Our driver is Gary Symbouras. And here are Gary's favorite transit frequencies.

31.060	Jamaica Bus Depot
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GUIDE TO UTILITY STATIONS 1992

10th edition • 534 pages • \$ 48 or DEM 70

7500 new coastal and fixed station frequencies!

Our bestseller covers the complete frequency range between 0 and 30 MHz. We are the very first to publish *all* new maritime frequencies worldwide in use since the gigantic global frequency transfer in July 1991 - *now* and not five years later! Latest military and political events such as the impacts of the Gulf War and of the recent and current revolutions in Eastern Europe are covered exclusively by our **UTILITY GUIDE**. Sophisticated operating methods and regular overseas monitoring missions (1991 for months in India, Malaysia, Mauritius, Reunion, Rodrigues, Surinam and Venezuela) complete this unique book.

The completely revised new edition includes a frequency list with 19136 frequencies, and a call sign list with 3514 call signs. Up-to-date schedules of FAX meteo stations and RTTY press services are listed both alphabetically and chronologically. Abbreviations, addresses, codes, definitions, explanations, frequency band plans, international regulations, modulation types, NAVTEX schedules, Q and Z codes, station classes, telex codes, etc. - this reference book lists everything. Thus, it is the ideal addition to the World Radio TV Handbook for the "special" stations on SW!

Further publications available are *Guide to Facsimile Stations*, *Radio-teletype Code Manual* (11th ed.) and *Air and Meteo Code Manual* (new 12th ed.). We have published our international radio books for 23 years. They are in daily use with equipment manufacturers, monitoring services, radio amateurs, shortwave listeners and telecommunication administrations worldwide. Please ask for our free catalogue, including recommendations from all over the world. For recent *MT* book reviews see Jack Albert in 5/91 and Larry Van Hoorn in 9/91. All manuals are published in the handy 17 x 24 cm format, and of course written in English.

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151.145	Mobile Bus
160.965	Base
161.1750	Flushing Bus Depot
470.4125	Queens Village Bus Depot/voice
470.4625	Queens Village Bus Depot/data

Well, we took a train ride and then we hopped onto a bus. I guess you know what's next—a plane ride to **Sidney, Australia**. The airport security frequency is 464.025. Here are the codes that are used:

CODE

1100	Officer needs assistance	1800	Medical center alarm
1300	Crash alarm	2000	Precious escort
1500	Cashier alarm	2100	Cashier escort
1600	Bank alarm	2200	Credit union escort

The above information was obtained from *The Australian Airband Guide* by Bob Bell. To obtain a copy of the book, contact Airband Communications, 68 Ashby Avenue, Yagoona, NSW Australia 2199.

If you enjoyed riding the rails, roads and sky ways, why not invite everyone to take a ride through your town? Simply send a list of your favorite frequencies to the Frequency Exchange, P.O. Box 98, Brass-town, NC 28902.

Treasure Hunt

To the scanner buff, visiting an unfamiliar city presents an interesting challenge. As you know, the first order of business is to find the town's scanner frequencies. If you had a complete set of national reference books, you could find the operating frequencies in a matter of minutes. Does it sound too good to be true? If so, you probably don't have the

complete, twelve volume set of *Police Call*.

Police Call is published by Gene Hughes, and it is the largest selling frequency reference in the world. Each volume contains thousands of frequencies for individual cities and states. The 1992 edition is new and completely revised. To win the complete set, find the answers to the following clues.

1. How many emergency vehicles are on the front cover of the '92 edition of *Police Call*?
2. How many antennas can you find on the front cover of the '92 edition of *Police Call*?
3. A Ham license is required to use all of the features on the ICOM IC-2SRA. True or False?
4. With the "Super Converter II" from GRE, it would be possible to monitor the 800 megahertz band with an old PRO-30 scanner radio. True or False?
5. Refer to the December '91 edition of *MT* and provide the month and year that Monitoring Times was first published.

For this particular Treasure Hunt, I'll be giving away two complete sets of *Police Call*. Mail your entries to the Treasure Hunt, P.O. Box 98, Brasstown, NC 28902. Please remember to observe the following rules: 1) Fax entries will not be accepted. 2) All entries must be mailed separately. 3) The use of post cards is encouraged.

Laser Tag

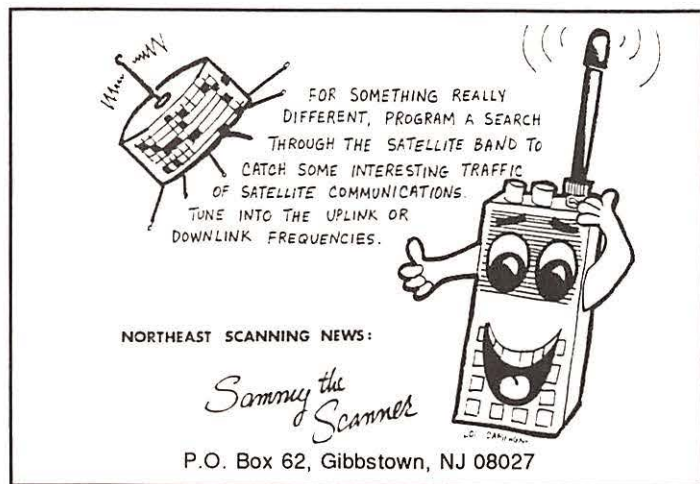
The local police in Charleston, South Carolina, are using a laser to catch speeding motorists. According to Sheriff Richard Allen, laser technology has changed the rules of the speeding game. "We're stopping cars that look like a Radio Shack surplus store inside."

Lasers cannot be detected by conventional radar detectors. Light pulses are sent out, with each pulse measuring the distance to a car. The car's speed is calculated by measuring how quickly the pulses are reflected. The entire process takes about one third of a second!

Motorists that enjoy driving in the fast lane will be happy to learn that several companies are attempting to produce the first "Laser Detector." (News clipping from *Hugh Miller, Woodinville, WA*)

Computer Crash

In Grand Rapids, Michigan, a county sheriff "crashed" his computer. But it was more than a simple program malfunction or hard drive failure. Sergeant Daniel Ven Roy overturned his police car. Also hurt was a passenger in a second vehicle. Sheriff Ven Roy said the accident occurred while he was looking at a message on his in-car law-enforcement computer! (News clipping from *Robert Berggren*)



Car Phones and Scanner Radios

A resident in Bedford, Ohio, was driving his car when he heard a stolen car report on his police radio. Realizing that the car was directly in front of his, he called police on his cellular phone. The suspect parked the car and entered a store. When the police arrived, the witness described the thief. He was apprehended inside the store.

Are you using a scanner radio and cellular phone to deter crime? Or maybe you know of a similar incident. If so, send your comments and news clippings to the Scanning Report, P.O. Box 98, Brasstown, N.C. 28902.

Trama Troopers

A few years ago, people in the crime-ridden section of Brooklyn, New York, had to wait up to 30 minutes for an ambulance. To speed up the response time, community members organized a volunteer ambulance corps. Members listened to police scanners and raced on foot to stabilize patients. Eventually, private contributions allowed the group to purchase an ambulance. Then three more ambulances were added. Today, the Bedford ambulance corps handles 300 calls per month. Residents call them "Trama Troopers." The owner and founder of the corps summed it up this way: "It's hard to believe that we started with a pair of sneakers and a scanner radio."

Seismic Scanning

Are you an earthquake monitor? If so, fellow scanner buff, Tony Colonello, wants to talk with you. Tony lives in Adelano, California, and he claims that Cal Tech University has seismographs that are connected to antennas. Apparently, the antennas are used to transmit earthquake data to the University. If you're familiar with the equipment, or have the frequencies, send me a short note and I'll pass it along to Tony.

Audio Blast

Having trouble hearing your mobile scanner? To boost the audio, plug your scanner's earphone jack into a CD cassette adapter. The adapters are made to fit into your vehicle's stereo radio. You'll have the full power of your car stereo to boost the volume of your scanner radio. Cassette adapters retail for about \$20.00 dollars and are available from Radio Shack stores.

Scanning Challenge

We had fun administering the Scanning Test in 1991; we hope all of you who earned your certificates enjoyed it and learned something along the way, too. That was the object of the exercise. The test is now officially closed, but anyone still wishing to upgrade or with unresolved questions may contact Bob Kay, c/o the Scanning Report.

For those of you who still enjoy testing your skills, here's something new to try. If there's an "all news" radio station operating in your area, take the "Scanning Challenge." The object of the challenge is to monitor an emergency before it is broadcast on public radio. Simply place a small AM or FM radio in your shack, and listen to the news. With a little practice, you'll be able to monitor emergencies long before they hit the public airways.

Next Month

You're all invited to come back and visit. In the meantime, don't be afraid to send in your questions and comments. All we ask is that you include an SASE for a personal reply. Here's the address: The Scanning Report, P.O. Box 98, Brasstown, NC 28902.



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Digital programmable 200 channel hand held scanner with raised button keyboard for easy programming of the following frequency ranges: 29-54 MHz, 118-174 MHz, 406-512 MHz, 806-956 MHz. * Features include: Scan delay, memory backup, key pad lock, sidetone liquid crystal display, channel lockout, 10 twenty channel banks, direct channel access, automatic search, full one year factory warranty, 10 priority channels, Ni-Cad battery pack, AC adapter/charger, flexible rubber antenna carry case are all included. Size is 2-1/16" Wx1-3/8" Dx7-1/2" high. (Optional extended 2 yr. warranty \$29.99, 3 yr. extended warranty \$39.99.)
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RELM RH-256NB HIGH BAND TWO-WAY RADIO



\$339.99
(Plus \$9.00 Shipping Each)

16 channel digital readout two-way radio. Covers high band frequency range of 148-162 MHz without retuning. Perfect two-way radio for ambulance, police, fire, tow trucks, taxis, commercial companies who use this band. Features include CTCSS tones built-in, priority, 25 watts output, channel scanning, back lighted keyboard, message light, time out timer, scan delay, external speaker jack. Size is 2 1/4" Hx6 1/2" Wx10 1/4" D.

SPECIAL PACKAGE DEAL includes RH-256NB, mobile microphone, 1/4 wave body mount antenna, mobile mounting bracket and mobile power cord all for the low price of \$339.99

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Our best selling mobile scanner 16 channel AC/DC programmable digital AC/DC cords telescopic antenna, mobile mounting bracket, weather search priority 29-54 MHz, 136-174 MHz, 406-512 MHz, external speaker and antenna jack.

BEARCAT BC-100XLT

100 Channel Digital Programmable Hand-Held Scanner

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Our best price ever on a full featured complete package hand-held scanner. Manufactured by Uniden. Features include 11 bands of weather, aircraft, public service, trans, marine, plus more (29-54 MHz, 118-174 MHz, 406-512 MHz), 10 channel banks, 10 priority channels, lighted LCD display, earphone jack, channel lockout, AC/DC operation, scans 15 channels per second, track tuning. Special package deal includes following accessories: AC adapter/charger, rechargeable Ni-Cad battery pack, flexible rubber antenna, carry case.

SANGEAN ATS-803A SHORT WAVE RECEIVER

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AM/FM/LW and 12 shortwave bands plus FM stereo, BFO for SSB reception, clock radio. Includes AC adapter, telescopic antenna, stereo headphones, and shoulder strap.

BEARCAT BC-147XLT 16 CHANNEL BASE SCANNER

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UNIDEN BEARCAT BC 800XLT



\$249.99 (\$8.00 Shipping)

Receive Cellular Phone Calls

Plus police, fire, ambulance, cordless phones, marine, trains, weather, ham, stock cars, public service plus much more. Frequency coverage 29-54 MHz, 118-174 MHz, 406-512 MHz, 806-912 MHz (includes cellular), 40 channels, AC/DC operation, digital programmable, memory backup requires 2 AA batteries (not included), telescopic antenna included, AC power cord included, external speaker jack, external antenna jack. Dimensions: 9 1/2" D x 4 1/2" H x 12 1/2" W. Channel lockout, direct channel access, scan delay, priority, digital display, auto weather button, automatic search, track tuning.

UNIDEN BEARCAT BC-950 XLT



\$249.99 (\$7.00 shipping)

Digital Programmable 100 Channel Scanner

BC-950 XLT covers the following frequencies: 29-54 MHz, 118-174 MHz, 406-512 MHz, 806-954 MHz (excludes cellular). Features compact size of 6-5/16" Wx1-5/8" Hx7-3/8", scan delay, priority, memory backup, channel lockout, bank scanning, key lock, AC/DC power cords, telescopic antenna, mounting bracket supplied, one year factory warranty, search, direct channel access, track tuning, service search including preprogrammed frequencies by pushing a single button for police, fire, emergency, aircraft, weather, and marine services plus exclusive optional features never available on any scanner before. First is an RF receive amplifier for boosting weak signals for only \$34.99 plus a CTCSS tone board is available for only \$59.99 to make this the number one scanner available in the USA. Optional cigarette lighter plug #950MPC \$4.99.

UNIDEN MR 8100



SPECIAL SALE PRICE \$289.99

ONLY (\$10.00 Shipping Each)

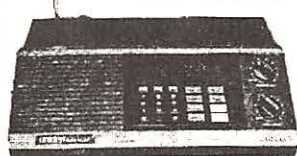
100 channel digital programmable mobile scanner, turbo scan up to 100 channels per second, lockout, priority, built-in automatic 2 second delay, dimmer control, back lighted keyboard, track tuning, direct programming of frequencies from front keyboard plus you can also program MR 8100 from your IBM compatible PC computer with software and cables included with scanner from Scanner World. Frequency coverage: 29-54 MHz, 118-174 MHz, 406-512 MHz, 806-956 MHz. Dimensions: 7 9/16" W x 5 8/16" H x 1 9/16" Earphone jack, BNC antenna jack, DC power cord, mobile mounting bracket, internal memory backup, bank scanning, 10 banks of 10 channels in any combination.

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Scanning Radio Receiver

Digital programmable, 40 channels, 11 bands, including aircraft, AC/DC base, with raised letter keyboard for easy programming of the following frequency ranges: 29-54 MHz, 118-174 MHz, 406-512 MHz. Covering aircraft, police, fire, marine, trans, stock cars, weather, public service, plus much more. Features include: digital display, no crystals required, priority, external speaker or headphone jack, scan delay, auto weather button, channel lockout, search, squelch, memory backup.

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Frequency coverage 25-1200 MHz — only 22 inches tall. NEW REVISED DESIGN — no holes to drill — no glue needed. Complete with 17 foot cable, Motorola connector, and mounting hardware. Swivels to vertical position — performance unaffected by moisture in the window. Made in USA.



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what's new?



New Radio Shack Shortwave

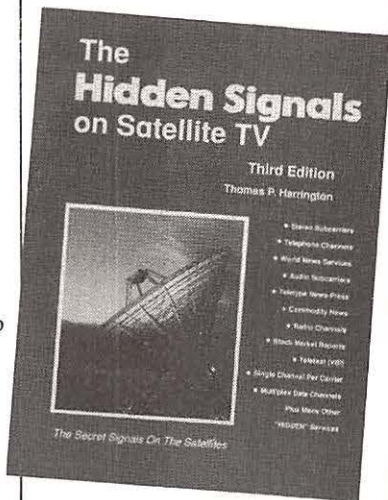
There's a new shortwave radio over at Radio Shack. It's the Realistic DX-380, a compact, lightweight (24.7 oz with batteries), portable receiver that's ideal for the person on the go. Along with its 13 band shortwave coverage (120, 90, 75, 60, 49, 41, 31, 25, 21, 19, 16, 13 and 11 meters), it can also receive AM (520-1710 kHz), FM (87.5-108 MHz) and longwave (150-519 kHz).

The DX-380 is easy to use and boasts a large LCD frequency display and large, well-spaced keys for entering frequencies accessing the radio's many features. Frequencies can be fine-tuned using a rotary dial. A manual control lock prevents accidental power shut-off or frequency change.

DX/Local and Narrow/Wide switches reduce distortion and interference in all modes except FM. The LCD displays time, band, frequency and signal strength. The dual time feature can be set to show local time, UTC or the local time of a city in another time zone.

The DX-380 has 45 memory channels. You can store 18 of your favorite shortwave frequencies and up to 9 each on AM, FM and longwave. The DX-380, which

operates on 4 "AA" batteries, comes with a folding stand and a headphone jack for private listening in stereo. The receiver is \$179.95 at your local Radio Shack store.



Hidden Signals

When Thomas Harrington's original *Hidden Signals on Satellite TV* was published, it created quite a stir. Here for the first time was a consolidated list of frequencies and channels on which were broadcast telephone conversations, stock market reports, news services, background music and a host of other previously-unpublicized satellite sources.

Now brought up to date, this new third edition is liberally illustrated and filled with useful information for the satellite enthusiast—what's up there, what equipment you need to hear and see them, and where to tune.

The Hidden Signals on Satellite TV Third Edition by Thomas P. Harrington is \$19.95

plus \$3 shipping from Universal Electronics, 4555 Groves Rd., Suite 13-MT, Columbus, OH 43232 and other MT advertisers.

New 10-Digit Frequency Counter

For serious radio enthusiasts—especially scanner monitors—a frequency counter is almost as important as the radio itself.

A frequency counter is a unique device that allows you to discover new frequencies. All you do is get up close, turn it on, and the frequency of the transmitter appears on the large LCD display like magic. It takes some work to learn how to get the most out of any frequency counter but it can quickly become a virtually indispensable part of your listening toolbox.

The MFJ-346 is not a toy. It's a serious 10-digit LCD frequency counter that can be used to find frequencies up to 600 MHz. The MFJ-346 utilizes high speed ASCII and custom LCD technology with an accuracy of 1 PPM.

You can get your frequency counter from MFJ for just \$189.95. Tell them MT told you to call 1-800-647-1800. The MFJ-346 comes with a full one-year unconditional guarantee.

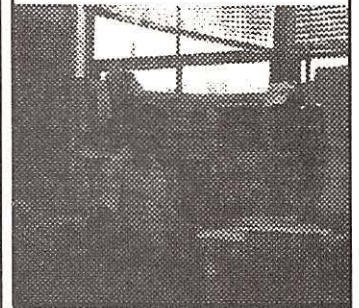
Utility Station Directory

After ten information-packed editions, Joerg Klingenfuss's *Guide to Utility Stations* has earned its reputation as the leading directory of worldwide communications frequencies.

Concentrating on 1.6-30 MHz (there are a few below 530 kHz VLF listings), the guide lists

Klingenfuss
GUIDE TO UTILITY STATIONS

Tenth Edition



callsigns, modes, transmissions schedules and locations.

For QSL collectors, an alphabetized directory of countries with the addresses of their commonly-heard coastal and aeronautical stations is included.

Appendices provide additional tables, such as radioteletype Z codes, radioteletype Q codes, and an extensive table of FAX and RTTY meteorological frequencies.

The publication does have European emphasis since that is where the author does his monitoring. But high frequency signals, especially those above 10 MHz, often are heard worldwide, so this is a minor criticism.

Guide to Utility Stations, Tenth Edition by Joerg Klingenfuss is available in the U.S. for \$35 plus shipping from DX Radio Supply, Universal Shortwave and other MT advertisers.

QSY Keypad Frequency Selector

International Radio and Computer is now offering a keypad frequency selector for ICOM (including the R7000/9000 and R-71), Kenwood (including the R-5000) and Yaesu radios.

QSYers provide high-speed frequency entry, and automati-

cally select the proper mode (CW/LSB/USB, etc.) for the selected frequency. It installs literally in seconds to the radio's computer interface on the rear panel.

Automatic antenna tuners and linear amplifiers work with the QSYer attached just as if frequencies were entered the old way.

For more information on the QSYer Frequency Keypad Selector or a complete list of compatible radios, call 1-407-489-0956 or write International Radio and Computer, 3804-MT South U.S. 1, Fort Pierce, Florida 34982.

Drake R8/R8E Review

International Broadcasting Services, Ltd., has produced what it calls a "Passport Evaluation of The Drake R8/R8E Receiver (Improved Version), a Radio Database White Paper." Analysis of the unit was by Jock Elliott, Larry Magne and Tony Jones.

We can't go into the review in detail, but suffice it to say that the R8 got what it deserved—a full five stars. The 35-page "Passport Evaluation of the Drake R8 Receiver" costs \$5.95—a price well worth it if you're thinking of purchasing one of these \$979.00 marvels.

You can get yours direct from the publisher at P.O. Box 300MT, Penn's Park, PA 18943 or from *Monitoring Times* advertisers DX Radio Supply, EEB, and Universal Radio.

Shortwave Listener's Guide

Author Edward Noll W3FQJ is well-known among hams; his byline has appeared on over 50 books and countless magazine articles over the decades. First



licensed in 1935, he was a shortwave listener before that.

Noll's *Shortwave Listener's Guide for Apartment/Condo Dwellers* is written for the beginner, the newcomer who has just bought a shortwave receiver and now wants to get the most out of listening without a lot of real estate.

Noll wisely points out the necessity of a good antenna, adding that even worst-case installations can be properly addressed for optimum reception.

While the book, published by MFJ, shamelessly promotes only MFJ products, think of these references in a generic sense and shop around, comparing competitive models as well. In many cases, you won't do better than MFJ.

But Noll doesn't concentrate on antennas and accessories; tips for listening, DXing, QSLing, time conversion, and more are covered thoughtfully.

All told, this is a handy reader for the new shortwave listener. *The Shortwave Listener's Guide For Apartment/Condo Dwellers* by Edward M. Noll W3FQJ is \$9.95 plus \$3 shipping from MFJ Enterprises, PO Box 494MT, Mississippi State, MS 39762 and from MFJ dealers.

Clandestine File

Published every other month, a small-circulation publication

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MAX 800 GROUND PLANE

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Only \$19.95

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	BNC Mag Mount	12.95
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US shipping and handling \$4.00

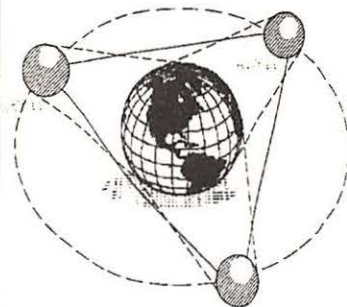
called "Clandestine Confidential" has quietly been making inroads into the shadowy side of international radio. Now in its eighth year, CC is available in a complete set of some 48 issues.

Going page-by-page through the back issues, it's almost a history book of revolutionary and counterrevolutionary broadcasting. Some represent conflicts long gone, others, sadly, still active.

"Clandestine Confidential" comes in a three-hole punched spiral binder and is available from Tiare Publications, P.O. Box 493-MT, Lake Geneva, Wisconsin 53147 for \$25.00 plus \$2.00 shipping.

World Satellite Almanac

If a hundred bucks seems like



a lot of money to pay for a book, you haven't seen this book. *The World Satellite Almanac* by Mark Long is a cornucopia of information on over 200 domestic and international communications and broadcast satellites from Afristar through Zohreh.

This giant compendium includes bandplans, transponder layouts, orbital information, frequencies and modes, and technical specifications on all the birds.

An exhaustive appendix section provides a glossary of terminology, country lists of

satellites and TV standards, maps of reception outages due to natural phenomena, and directories of equipment and services.

Introductory chapters inform the newcomer of satellite earth station basics, voice and data transmission techniques and scrambling technologies.

If you are looking for one book to tell you about broadcast and domestic communications satellites, this is it. Over 1000 pages long, the *World Satellite Almanac* by Mark Long is \$99.95 plus \$14 shipping from MLE Inc., Box 159-MT, Winter Beach, FL 32971.



The DXers Guide to the Galaxy

On the other hand, here is a compendium of communications satellites which is offered for free: Radio Sweden's *Communications in Space: The DXer's Guide to the Galaxy*.

A number of shortwave stations are known for their free publications. Many of these were propaganda pieces put out by the former communist countries. Others came out of places like Holland and Sweden, a benefit of government subsidies.

Edition 5.1 of *Communications in Space: The DXer's Guide to the Galaxy*, though packed with information of undoubted importance to the satellite enthusiast, will be dull reading to those with only marginal interest in the big birds. There is little in the way of introduction for the layperson although there is a

brief bibliography of suggested reading.

Then again, the publication is thorough and it is free. The 27 page publication is available from George Wood, Radio Sweden, Dept. MT, S-105 10 Stockholm, Sweden.

Eleven Meters

R.L. Smith Graphic has announced the release of *The Eleven Meter S.S.B. and C.B. Scrapbook*. While we were not given the chance to review one, (promotional literature says that it's "filled with information, projects, schematics, and sources for the dedicated CB or Single Sideband operator"), we were struck by the price: \$10.00 for a mere 20 pages (plus \$2.00 shipping!).

If you'd like more information on the *Eleven Meter S.S.B. and C.B. Scrapbook*, contact Randy Smith at 21-MT Monroe Street, North Haven, Connecticut 06473.

New Swap Sheet

Another new radio classified publication has appeared on the market place. The newest contender is called the *Radio Sheet Bargain Guide* and it covers ham radio, CB, scanners and shortwave radios.

Listings in the *Radio Sheet Bargain Guide* are free — there is no charge to advertise. If you want to subscribe, the price is \$12.00 a year, mailed first class. You can put in a free listing or subscribe by writing to *Radio Sheet Bargain Guide* at 23 N. Locust St., Hagerstown, Maryland 21740.

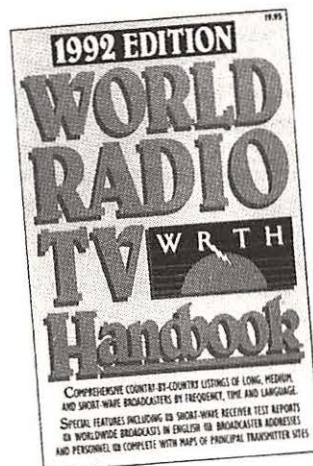
Stamp of Approval

One slick way of improving your odds for getting that elusive

QSL is to include return postage using mint stamps from the country you are writing.

But where do you turn when you need a postage for Albania, Belgium, Botswana, Libya or anyone of a hundred or so other nations? Try Brian W. Tredwell's DX QSL Associates. Here you can get mint stamps from all over the world.

For a free copy of Mr. Tredwell's catalog, send a self-addressed, stamped, envelope to 434-MT Blair Road N.W., Vienna, VA 22180.



1992 World Radio TV Handbook

The most information-packed reference work covering worldwide broadcasting is the *World Radio TV Handbook*. The new 1992 edition has been updated to include the changes in Central and Eastern Europe.

The multilingual publication (introductory chapters are written in English, Spanish, German and French) includes the addresses and key personnel of world broadcasters as well as maps of transmitter sites, time signal station lists and several articles on solar activity and its effects on radio signal propagation.

An appendix contains an informative and illustrated chapter on satellite antennas as well as a section on all the new shortwave receivers.

The 590-page 1992 *World Radio TV handbook* is available for under \$20 from many MT advertisers.



Railway Monitoring

A few months ago MT ran a readers' poll to see what listening interests there were among our hobbyists. The number of folks who listen to railway communications surprised us.

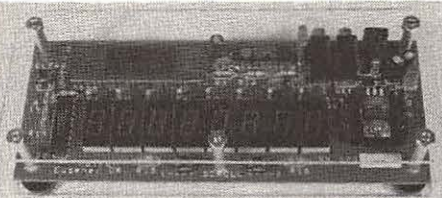
One of the handiest guides to railway monitoring is *The Compendium of American Railroad Radio Frequencies*. Gary Sturm and Mark Landgraf's latest edition is a spiffy handbook—glossy pages and all—which would fit neatly in a briefcase or vehicle glove compartment for the scanner enthusiast on the go.

An excellent introductory chapter describes the systems that are out there, who does what on which frequencies. Terms like end of train telemetry, hump, talking hot box detectors and dragging equipment detectors are fully explained.

Railways are listed alphabetically, first by name, then by location. Frequencies and their uses follow. Industrial, historic, military, foreign and even rapid transit railway systems are included in this comprehensive directory.

The Compendium of American Railroad Radio Frequencies 11th Edition by Gary Sturm and Mark Landgraf is \$14.95 from Gary L. Sturm, PO Box 80041-MT, Ft. Wayne, IN 46898.

Review



Motron Touch-Tone Decoder

Touch-Tone (DTMF) control is very pervasive in our techno-era, from telephone dialing to repeater phone patches. The ability to remotely control some equipment function via DTMF is neat and easy.

But it is also valuable to be able to decode the tones heard over a radio link or wired system. A new decoder/display from MoTron Electronics (310 Garfield St., Suite 4, Eugene, OR 97402; ph. 800-338-9058) provides this capability for only \$99.

The TDD-8 instantly decodes and displays all 16 DTMF alphanumeric characters and symbols, and may be connected to any audio source—telephone line, receiver or scanner 'phone jack, tape recorder or facsimile machine. At 40 mS response time, it can track high-speed auto-dialers.

An eight character LED reveals any telephone number which was keyed in and scrolls "Times Square" style, storing up to 40 characters in memory.

An ASCII serial output allows computer interface for unattended, automatic logging or even remote data entry. An IBM compatible software disk is provided at no extra charge (CAB-1 interconnect cable kit, \$20).

The TDD-8 may be powered from any 9 to 12 VDC source (@ 200 mA); an optional PS-12 AC wall adaptor is available for \$10. The professionally designed circuit board, 6" x 2-1/4", may be mounted in a test equipment enclosure, or a transparent plastic mounting kit may be ordered from MoTron (PMK-1, \$15).

Impressions

It is always pleasing to see a product with thought, imagination and talent built in; MoTron's TDD-8 is just that, quality all the way.

Factory wired and tested before shipping, this decoder/display has mini-pushbuttons to allow scrolling back and forth to see memorized data and to clear the memory after review.

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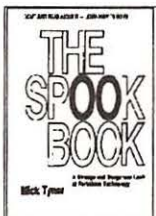
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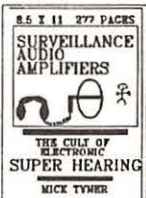


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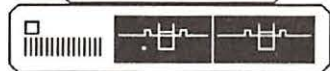
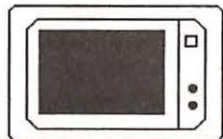
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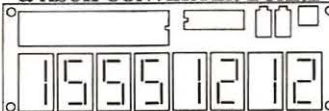
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Basic Schematic Diagrams

When I get the opportunity to travel the highways and byways of the good old US of A in search of radio fun, I find there is always one thing that I miss from the past. Remember when you could pull into any gas station (service station or filling station depending on which part of the country you are from) and get a great road map for free? Now you have to buy them if you can find them. More than likely the local "Tourist Trap" pump jockey will want to sell you an overpriced and outdated national road atlas with print so small that you have to purchase the accessory electron microscope to read it.

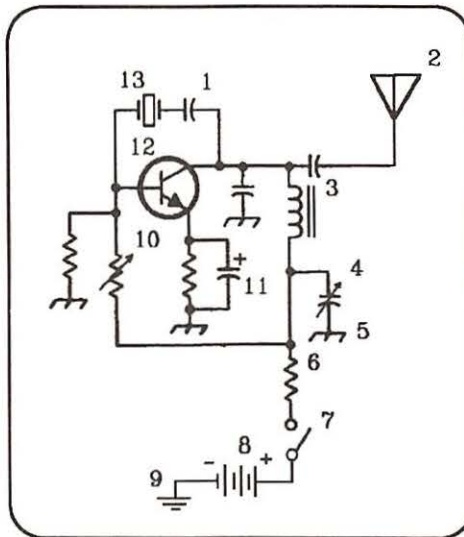
My old Zen Master always used to tell me that "No matter where you go, there you are." This notion never set well with my long standing western feelings of directedness. Maybe it's a deep seated control fetish but I like to know where I am going!

Take a few deep breaths, Uncle Skip. I'm sure this will pass.

No, really; I'm on to something here. It doesn't matter if you are traveling the interstate or looking around inside your receiver. You need to know where you're at! One of the early confusions for most beginners in the monitoring hobby is the **schematic diagram**. These diagrams appear in many of the manuals and magazines associated with this hobby. You could go so far as to change the name of **Demaw's Workbench** to **The Schematic of the Month!** Getting a handle on the meaning of these electronic hieroglyphics will open doors to dozens of radio adventures. Even if you never acquire the urge to pick up a soldering iron and build something (a sure sign of advanced stage radio addiction) knowing about all those little doodads inside your equipment could be important should one or more of them ever start smoldering. Grab your bullwhip and fedora, fellow adventurers, we are about to travel through . . .

UNCLE SKIP'S GUIDE TO SCHEMATIC DIAGRAMS

Take a glance at the diagram that accompanies this month's article. If you're an Old-timer, give yourself a genuine Uncle Skip "No Prize" Pat On The Back for recognizing this circuit to be, sort of, a Pierce Oscillator. I have tacked on a few components for training purposes. You may also notice that all the usual writing associated with schematic symbols has been



replaced with big numerals. All will become clear as we proceed, Grasshopper!

1. THE CAPACITOR

Below and left of the number 1 on the diagram you will see a squiggle that is made up of one straight line and one curved line with an open gap between them. This is the schematic symbol for the component known as the capacitor. Capacitors are devices that store electrical energy. They have the ability to block the flow of direct current and permit the flow of alternating current.

Capacitors will usually be found to have two designations noted next to them in a schematic diagram. You will usually see C1, C2, C3 . . . C Whatever. This "C" with a number after it serves to indicate the component on parts lists and on the actual circuit board. You see, schematics are laid out for ease of examination, while circuit boards are arranged for best electronic characteristics.

The second designator will be a number followed by one of two abbreviations. The abbreviation uF (or μF if written properly) stands for microfarads. The abbreviation pF stands for picofarads. These are units of measurement of capacitance.

On some schematics you will see a third designator indicating the voltage rating of the capacitor.

2. ANTENNA

Below and left of the number 2 you will find the schematic symbol for the antenna. Pretty obvious, huh? It even looks sort of like an antenna.

3. INDUCTOR

To the left of number 3 you will see a symbol that looks like four bumps with two straight lines next to it. This is the symbol for an **iron core inductor**. Inductors (sometimes called coils) are kind of like vice versa capacitors. They resist the flow of alternating current while allowing the passage of direct current. If this schematic symbol shown at number 3 were to appear without the two straight lines, it would represent an **air core inductor**. If it had an arrow running diagonally through it (similar to the components noted at numbers 4 and 10) it would represent a **variable inductor**.

While capacitors are designated with "C"s, you will find inductors are designated by the letter "L". (L1, L2, L3, etc.) The inductor's unit of measurement will usually appear as H for **Henry** or uH (μH) for **Microhenry**. If Old Uncle Skip ever invents an electrical measurement, I plan to name it the **Curley** (Nyuk Nyuk Nyuk)!

One point of possible confusion: If you see this symbol with an additional set of bumpy lines on the other side of the two straight lines, this will be a **transformer**. Transformers can appear with or without the two straight lines. Without indicates an **air core transformer**. (Just like the inductors, get it?) Transformers are designated with the letter "T".

4. VARIABLE CAPACITOR

Below and left of the number four you will find our old friend the capacitor with an arrow through its heart. No, it has not fallen in love. This indicates a variable capacitor or possibly what is known as a trimmer capacitor. These components are also designated with the letter "C". The capacitance value indicated next to the component shows its maximum adjustment value.

5. CHASSIS GROUND

The little rake-like symbol that sits to the left of number stands for chassis ground. It refers to a common connection that may appear in several places in a circuit. The connection is made through the metal chassis or a common ground buss on the circuit board.

6. RESISTOR

I once thought these were little lightning bolts that showed the flow of electricity through the circuit. Boy, was I wrong! Resistors limit the flow of current through a circuit and provide a voltage drop. Their designator is the letter "R". As for their values: If you see a number without anything written after it, that is the component's value in **ohms**. If the number is followed by the

letter "K" you multiply the number by 1000. If the number is followed by the letter "M" or "MEG" you multiply the number by one million.

Where it is critical, you will see the maximum power rating of the resistor indicated in **watts** as an additional designator.

7. SWITCH

To the left of number 7 you will see the fairly obvious symbol for the switch. This represents what is known as a single pole, single throw switch. Two of these symbols, side by side, connected by a broken line suggests a double pole, single throw switch.

8. BATTERY

Under the number 8 you will see a series of short and long lines that represent a battery. Polarity is usually marked near the symbol. However, some schematics use the short line to show the negative pole and the longer line to indicate the positive pole. A single pair of short and long lines suggests a cell as opposed to a battery. Batteries are designated with the letter "B" and they usually appear with their voltage rating listed next to the symbol.

9. EARTH GROUND

To the right of number 9 you will see three decreasing straight lines. This is the symbol of an **earth ground**. This is the connection that is usually made through the third large lug on the plug that runs to your wall socket. However, many radio circuits will expect a separate earth ground connection, usually to a cold water pipe or ground stake outside your home. When in doubt, read the manual!

10. POTENTIOMETER

Below and left of the number 10 you will find a resistor smitten with an arrow like the capacitor at number 4. This symbolizes a variable resistor often known as a potentiometer.

The **AF gain** or volume control on your receiver is usually designated by this sort of symbol. Like other resistors, this is marked with an "R". The resistance value indicates the maximum resistance adjustment.

11. ELECTROLYTIC CAPACITOR

To the left of number 11 you will find another flavor of our friend the capacitor. The electrolytic capacitor has to be connected with reference to its polarity. The little plus sign to the top right of the standard capacitor symbol is the give-away that this is an electrolytic capacitor. The other give-away is that electrolytics will always be shown with their voltage rating in addition to their capacitance value on the schematic diagram.

12. SEMICONDUCTORS

There are so many symbols for semiconductors that it would be a topic for several columns in and of itself. In this case we find, below the number 12, the humble **transistor**. This particular variation is known as the NPN transistor indicated by the little arrow pointing out. Semiconductors are designated by the letter "Q" and their particular part number. Around a semiconductor you will also see other letters. Most commonly you will see C, B & E or D, G & S. These letters are indications of the meaning of each of the leads that extend out of the component and connect it to the circuit.

Now that we live in a world of **Integrated Circuits (ICs)**, you will find some circuits that include a schematic symbol of a large triangle or rectangle with many connections coming out of it. This is how ICs are usually indicated. They are designated by the letter "U" and by their part number. The part number usually appears inside the triangle because its would be confused anywhere else with the numbers marking each of the leads that emanate from the integrated circuit.

13. CRYSTAL

I am sure this whirlwind tour of schematic symbols has left you out of breath so we will close out with an easy symbol. Below the number 13 you will see a little rectangle enclosed between two short straight lines. This is the symbol for a crystal. Crystals are designated by the letter "Y" and they are rated in terms of their frequency. The frequency is usually expressed in kilohertz (kHz) or in megahertz (MHz).

Where Do We Go From Here?

You must remember that this little trip through schematic land is only meant to whet your appetite for the study of a much larger body of knowledge. There are well over one hundred schematic symbols in common usage in electronics today. If your interest is raised by this simple study, you can find more information on all the other symbols in schematic diagrams by perusing books such as *The ARRL Handbook*, published by the American Radio relay League, Newington, CT, or William Orr's *Radio Handbook* published by Howard W. Sams & Co, Indianapolis, IN, and available through many of the electronics book distributors found in *MT*.

As you learn more about schematic diagrams, you will find that you will become as comfortable with the symbols on this electronic road map as you probably are with the ones you find on the road map in your glove compartment. That is, of course, unless you're my old friend Steve who got us really lost in the middle of nowhere during a hidden transmitter hunt back in '76...but that is another story!



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The World Satellite Almanac

Those of us who had previous editions of the *World Satellite Almanac* (WSA), written and compiled by Mark Long and published by MLE, Inc., have waited, albeit impatiently, for this third edition. We are not disappointed.

If you are not already familiar with the author you are probably new to this hobby and will appreciate an introduction. Mark Long has authored hundreds of articles on the subject of satellite television.

MLE, Inc., of which Mark is the CEO, also publishes *World Satellite Update* "...a monthly newsletter of the Global Satellite communications industry," and *World Satellite Transponder Loading Report*...a quarterly publication that provides a listing of satellite transponder activity on a global basis."

Not to be caught napping, Mark has also produced several video tapes on the TVRO subject, lectures at numerous industry events and hosts his own radio show.

The Book

The World Satellite Almanac is divided into two parts. Part one, "The Global Satellite System," explains everything you ever wanted to know about satellites: video, audio, data transmissions and any combination thereof.

Mark Long's writing is understandable enough for the layman and thorough enough for the communications professional. The subject of encryption is given good treatment as is "voice and data transmission & reception techniques." International satellite communications, including the Intelsat, Eutelsat, Intersputnik and Inmarsat systems are each given separate chapters.

Part Two of the WSA is entitled "Satellite Coverage of International Telecommunications Union (ITU) Regions 1,2,&3." Details are given about each satellite, such as orbital assignment, launch date, and vehicle, design and mission life and current status. "Communications payload" details the uplink/downlink frequencies, number, polarization, bandwidth and power output of every channel for every satellite in orbit or planned.

In fact, this is an excellent source for a detailed look at satellites in our future. For example, there are three pages devoted to Galaxy 4, an as-yet unlaunched satellite.

And Still More!

The *Almanac* would have been worth \$100 if Mark long had stopped here. Instead he adds "Satellite Newsflash: Important, late breaking stories," "International Satellite Transponder Loading Report," as well as no fewer than 12

appendices. And finally, there's a general and special satellite index to speed up the search process.

Final Judgement

Everything about this book is big, including the \$100 price. But it is not a book for people who watch satellite TV. It is a book for people who study satellite technology, who have a professional or serious hobby interest in learning more about the single most important communications tool since movable type.

For a complete list of products and publications of MLE, Inc. write MLE, Inc. P.O. Box 159-MT, Winter Beach, FL 32971 or call 305-767-4687 (FAX) 305-767-6067. Publications include the aforementioned WSA, *World Satellite Update* (a 16 page monthly for \$350/year), *The Transponder Loading Report* (a quarterly for \$125 /year, sample copies: \$35 each). Products include two video tapes: "The World At 12 GHz" and "The Era of Direct Broadcast Satellites." Both are produced by Shelburne Films (54545 SR 681, Reedsville, OH 45772) which has a series of video tapes on the subject of TVRO.

Got a question for Mark Long? Ask him on his live radio show on the Let's Talk Radio Network (Spacenet 3 channel 21 6.20 MHz audio) Thursday evenings at 9:00 P(ET).

Transponder Notes

For years many of us have enjoyed watching the BBC Six O'clock News which was fed live at 1:00 P(ET). Last fall that feed was replaced with TTN's "World News" (W5,22). BBC fans have discovered that "BBC Breakfast News" airs Monday through Friday at 2:50 A (ET) and that they may also watch "BBC Nine O'clock News" on weekdays from 6:15-6:45 P(ET). Even though we've lost the News At Six we have gained the additional feeds which many will consider a fair trade.

1991 saw an unprecedented rearranging of our view of the Clarke Belt. The up-shot of this "musical chairs" maneuver was that the three oldest satellites, F4, W4, and F3, were replaced with birds of better transponder power output. The next year will continue this type of change beginning in the first quarter with Galaxy 5 replacing Galaxy 1. The best news is that the newer satellites will have an even better signal with their 16 watt transponders.

Look for CNBC (F1R,6) to begin full time VCII encryption as of the first week of March. Word from General Instrument is that programmers currently using VCII encryption will all be

upgraded to VCII Plus late this year. I suspect that could mean early 1993.

Mailbag

• Ricardo Cueva of Monterrey, Mexico, would like more details on receiving SCPC with a TV band radio.

This method of SCPC (Single Channel Per Carrier) reception works only with satellite receivers which have a 70 MHz loop on the back of the receiver.

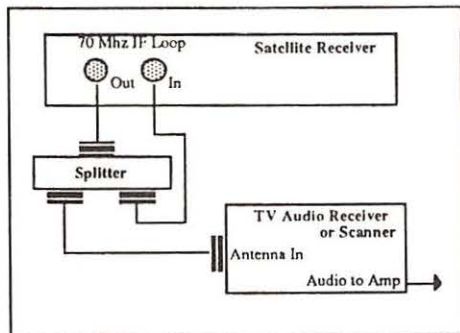
With two additional short 75 ohm coax cables with F connectors on each end, unplug the "input" side of the loop. Plug that loose end into a TV splitter (Radio Shack #15-1141). Take the two extra cables and plug one end of each cable into each of the two splitter "legs." Take one of the cable's loose ends and plug it into the "input" side of the 70 MHz loop. You've just closed the loop. (Incidentally, many satellite receivers will not function properly unless the loop is closed.) Now take that last dangling cable and affix it to the antenna of any cheap portable TV Band radio.

Let's pause here to figure out how it works. These radios are used because the band you'll be tuning is the channel 2-6 band which is 54-88 MHz. The loop, at 70 MHz, falls in between. The radio is simply a tuning device which allows you to tune plus or minus 18 kHz either side of the 70 MHz IF loop. The best part is that the tuning device has a built-in amplifier and speaker. The SCPC signals will be heard on the TV band radio!

Back to connecting the cable. Anything will work. Just see to it that the center conductor touches the antenna and it will work. You could get fancy and install a female F connector on the radio to take the plug directly. That's not necessary. You could use a 75 to 300 ohm balun and convert the coax end into twin lead TV wire. If you attach each spade lug to a side of an antenna "clothes pin" and clip it to the whip antenna of the TV band radio that will work. You could cut off the F connector and strip back the insulation, braid, and foam and leave about a half inch of conductor exposed. With needle-nose pliers bend the conductor into a hook and hang it on the telescoping whip. That will work, too!

How To Tune 70 MHz SCPC

The satellite receiver and the TV band radio must both be on. The dish must be "looking" at a satellite with SCPC signals (say Galaxy 2). The satellite receiver must be tuned to a channel on which these signals are transmitted. In the case of G2 it is channel 2. Now set the radio to the



Satellite Television Sourcebook

band that has channel 2-6 and turn up the volume. You'll hear the actual SCPC transmissions through this little radio! Twisting the tuning knob through those frequencies you'll hear many SCPC signals.

When you come to the end of the band reverse your tuning direction. This is called analog tuning and it is the oldest thing since crystal sets. It's also the easiest. The latest Westsat Channel Chart lists 72 SCPC channels for G2,3. Many will be blank or unmodulated carriers, others will have only a 1 kHz tone. Some programming will seem weak, others strong. Some signals will seem impossibly close together. Such is the nature of tuning SCPC on such a primitive device; the point is that it works. Make a list and log as many signals as you can. Tune to Galaxy 6 channels 1,2,3 and 4; Anik E2 channels 3,7,11,15,17,19,21,23.

This is not the best way to receive SCPC but it is the cheapest and will give you a good idea of what satellite DXing is all about. Have fun!

•Gerry Wentz (KC4EHT) of Melbourne, FL wrote a great letter and I'm constrained by space alone from wanting the whole thing printed. I'll just run the part that pertains to SCPC. "...I am using a Houston Tracker VIII and can detect the SCPC signals with an ICOM IC-R71A but they are unlistenable due to differing bandwidth considerations. I have NEVER captured one thing resembling an SCPC signal with a Pro 2004 or a Pro 2006.

"I have experimented with the various hook-up schemes in books and your column with no apparent success. I even suffer the paranoid thought that the writers leave out key facts in order to peddle *How To Do It* books."

Gerry, you're right about writers doing anything to sell a book. But, it's not reasonable to think that writers would get together on the time of day, let alone conspire to confuse you. I've heard from Pro 2006 owners who say they get great SCPC from them. God bless 'em.

Using a scanner (any quartz synthesized digital read-out) radio for SCPC has to be done differently than the above mentioned 70 MHz plan if you are using it to tune the 950-1450 MHz range of your satellite system's down-converter. FM/SCPC transmissions are very narrow bandwidth signals. Some scanning receivers do not have a narrow enough bandwidth filter to properly tune them.

But let's forget about radios that don't work and concentrate on ones that do.

Mark Long in his previously mentioned *World Satellite Almanac* likes the AOR 2515 and the Icom R-7000. Tom Harrington—noted satellite writer, manufacturer of sophisticated monitoring equipment for industry and consumers, and publisher of the *Hidden Signals on Satellite*—likes the ICOM R-100, a new all-band, all-mode scanning receiver. John Phillips, publisher of the Westsat Communications' *Satellite Channel Chart* likes the Heil SC-1.

Of these radios the Heil SC-1 at \$450 will be the cheapest and the most consumer friendly. With the SC-1 you don't even need the splitter or DC Block; it's built-in! For more information on the SC-1 call Bob Heil at 618-295-3000 or write him for more SCPC information at Heil Sound Ltd., 2 Heil Drive, Marissa, IL 62257. Tell him MT sent you.

How To Tune 950-1450 MHz SCPC

Remove the 75 ohm coax cable plugged into the back of your satellite receiver usually labeled "950-1450 MHz In." This is the cable from the LNB on your dish. You should turn off your receiver to avoid possibly shorting the cable. Plug this cable into a 950-1450 MHz splitter (not the type mentioned in the 70 MHz method. Every satellite dealer has boxes of these).

Take a short length of 75 ohm coax with F connectors on each end and install one end on one leg of the splitter and the other end back on the receiver where it's labeled "950-1450 MHz In." To the other leg of the splitter attach a "DC Block" F connector (R.S. #15-1259). This is to keep the DC voltage which powers the LNB at the dish from getting into your SCPC scanning receiver and smoking it.

Attach another short length of 75 ohm coax to the leg with the DC block. Attach the other end of that cable to the antenna input of your SCPC radio, no matter what it is. You may have to use an adaptor to accommodate some receivers.

Rotate your dish to G2 as before. Make sure your satellite receiver is on. Make sure it's tuned to the proper polarity (horizontal or vertical) of the channel you want to tune. Turn your scanner on and set the bandwidth to its most narrow position. Set the scanner to 950 MHz and start tuning upward. The SCPC signals will come out of your scanner's speaker!

If you want better audio, take the audio from the audio or speaker jack on the back of the scanner and plug it into a graphic equalizer. Take that signal and feed it into a stereo amplifier and into some decent speakers. You'll be surprised at the quality of the sound.

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Beating the Winter Monitoring Blues

The snow is on the roof, the antenna is covered with ice. There is nothing much to do.

You sit down with a warm cup of cocoa and twiddle the knobs, hoping for that rare radio catch. Hours go by and not much is heard, but you are patient, as most good monitors are, and realize that good things come to those who wait.

Still, it is hard to just sit there and just listen to static. With the scanners dead and boredom setting in, now is a great time to organize your listening post and sharpen your monitoring skills.

Getting it Together

Let's start by getting out those scraps of paper that you have been scribbling frequencies on all year, those lists that friends have given you and back issues of *MT*. It's time to organize it all.

Those of you that own a computer have at your disposal a great tool for collating all that information into something you can use. If you aren't a computer owner, buy yourself a nice bound ledger. When organizing your frequency files, do so in a way that will make them easier to access later. I compile mine by agency type. For example, all local police and fire listings go in one section, military, aviation, and federal frequencies in another. Color coded tabs on each

section help you locate the information you need quickly.

Make sure you not only log them by frequency and agency type, but leave room for special notations such as communications mode, date and time of intercept, and any other information worth noting. These little notations can really help give you a clearer picture of the communications system you are monitoring.

Computer owners should make sure to have a hard copy readout of your frequency files as well. If your computer goes down, you will have a permanent backup copy. Keeping clear, concise and up-to-date frequency files are the key to successful monitoring.

Searching...

When the local airwaves are quiet, try searching through the bands for other listening fare. Do a slow, methodical search of all the bands, aviation, military, federal, police, etc. You'll be surprised what you'll find.

Jot down all intercepts and try to identify them. Even if it turns out to be the frequency of the local plumbing service, it might come in handy someday. I try to spend at least one hour a day searching the bands for new active channels. Some of my best intercepts have come from this technique.

Tape it

A tape recorder is an indispensable part of any federal monitoring post. If you aren't already taping your intercepts, you should be. The addition of a scanner activated tape recorder can compress hours of monitoring into minutes and also provide a permanent record and a good way to verify your intercepts.

If you are into collecting QSLs, send the station you monitored a tape. I have sent many tapes out and received in return, photos, QSL cards, patches, pins and stickers.

Projects, Projects, Projects

Let's take advantage of those long winter nights. You know that special project that you have been thinking about getting around to? Winter is a good time to get it started. Get out your old *MT*s and order that search and store module, preamp, or converter kit you have always wanted.

Did you receive some extra money for Christmas or are you anticipating a big tax refund? Start shopping for that new receiver now; prices are lower after the holidays and you might find a bargain as manufacturers introduce new models and clear out the older ones.

Catch up on your reading

Order those frequency books that you have

been thinking about. There are some great titles out there, filled with information for the federal/military monitor. Imagine having at your fingertips these great directories brimming with frequency information.

But, there are more than frequency guides out there to choose from. Is military monitoring your passion? There are great books about military aircraft, navy ships, combat and tactics that will add to your knowledge, understanding and enjoyment of military monitoring. (See Figure 1 for the *Federal File's Top Ten Reading List*.)

The winter months don't have to be boring. It's a great time to organize, catch up on your reading, experiment, gather information, and, most of all, exercise your monitoring muscles.

MAILBAG

Janet Jumble

It seems that the mystery behind the secret JANET flights flying out of McCarran Airport, Las Vegas, has generated more mail and speculation than any Fed File topic of late. The letters keep pouring in from people claiming to know or wanting to know what is going on out in the remote deserts of Nevada.

Many of the letter writers who have provided additional on the subject information want to remain anonymous. Some claim to be personally involved with the JANET flights and others have been snooping around McCarran, trying to dig up the truth. Federal File and *MT* readers are inquisitive by nature and love to solve mysteries. If you have been a long time *MT* reader, you will remember that it was intrepid *MT* reporters who uncovered a secret spy numbers station in Warrenton, Virginia, and recently revealed the existence of the TR-3a Black Manta stealth reconnaissance aircraft. (*MT* broke the story a full two months before a recent *Popular Mechanics* story). When *MT* readers get their hooks in a story, they don't give up. What they have found out about the JANETs and Groom Lake is both fascinating and unbelievable.

What is known

The JANET 737s are parked next to EG&G (Edgerton, Germeshausen, Grier) facility at McCarran. EG&G is known as a company involved in secret contract work for the Department of Energy, Department of Defense, NASA and a veritable "Who's Who" list of secret government agencies. This strongly suggests that the aircraft leaving McCarran are involved with some kind of secret government work. One letter writer states that they have a Special Projects Division of EG&G based at Nellis AFB as well.

The flight plans reveal that the destination of the JANET flights seem to be nuclear research and development centers throughout the country,

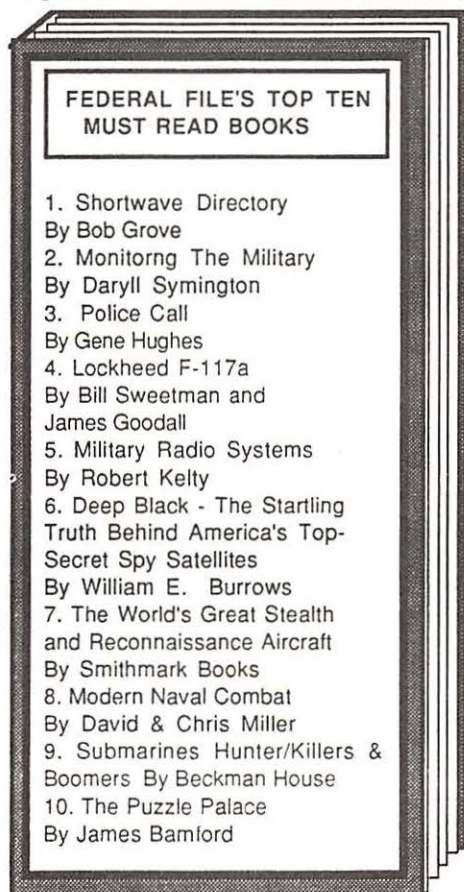


Figure 1

such as Sandia Labs in Albuquerque. Some of the flights are ferrying people (technicians, scientists and equipment) to Groom Lake, a super-secret test center located in the middle of the sprawling Nellis complex.

As Fed File readers are well aware, Groom Lake is where the mysterious "Aurora Project" (hypersonic stealth spyplane) is said to be under development. Other stealth aircraft are also rumored to be based at Groom Lake as well. Flown to Groom Lakes (Watertown Strip), the EG&G people then board buses with blacked-out windows and are taken to Area 51/S-4, an even more secret part of the Groom Lake complex. S-4 is located a few miles South and West of Groom Lake in an area known as "Dreamland."

"Snowbird" — Truth or Snow Job ?

This is where it gets strange. Many of the letters report that the EG&G technicians and scientists are involved in a secret project called "Snowbird." Before I explain what "Snowbird" is I want to go on record stating that I don't know the truthfulness or the validity of these reports; however, many of the letters all describe the same bizarre scenario. Either what's going on out in Dreamland is the fantastic truth or a carefully constructed package of disinformation generated to make those snooping into the Groom Lake and McCarran mysteries look like kooks.

If it is disinformation, it is clearly being used to protect a very secret project underway at S-4. Whatever the truth is, hopefully it will present itself in time as all secrets tend to do. I present these facts as they were presented to me. Only you can decide for yourself if there is any truth to be found here.

According to many letters from people who claim to know first hand, the Groom Lake Project Snowbird involves the test flying and

"reverse engineering" of captured flying discs that crashed in New Mexico in 1947. According to many letters, all with different authors and post marks, the discs were recovered near Reswell, New Mexico, in June 1947. The disc(s) have been in custody of the government since then but only now are scientists beginning

to understand the secrets of their construction. "Snowbird" involves the study of the saucers and the attempt to build working prototypes of them. These replicated saucers are supposedly being test flown at Groom Lake.

When I received the first letter stating what "Project Snowbird" was, my first response was to laugh. But as the letters kept coming in, and information from others looking into the mystery was reported, it became apparent that there are quite a few somebodies who believe or want us to believe flying saucers are being test flown from Dreamland. The same

bizarre story has surfaced from many sources, including the national press.

One man who says he worked out at Dreamland has gone public with his claims. A Robert Lazar of Las Vegas says that he worked for the U.S. government at S-4 and witnessed the flying saucers being tested. KLAS-TV in Las Vegas investigated Lazar and found that he is a scientist who has done work at government facilities like Los Alamos and Sandia Labs. Lazar has also appeared on several UFO programs that have been aired nationally claiming he saw the saucers being tested at S-4.

To add to the tale, sightings of strange triangular aircraft, possessing incredible flying capabilities, continue to be reported by the general public in the area. Multiple sonic booms have rocked the Los Angeles and Las Vegas areas at night, alarming residents and prompting calls to the FAA who cannot explain what caused them.

Even to those who do not subscribe to the UFO theory, it is evident that the U.S. military is testing some kind of incredible flying machine capable of Mach 5 or better speed. "Project Snowbird" could be a cover story to divert attention elsewhere or discredit those who have gotten too close.

I leave it up to Federal File readers to decide what is the truth behind these strange revelations. When it is revealed, be assured you'll read it in the Federal File first!

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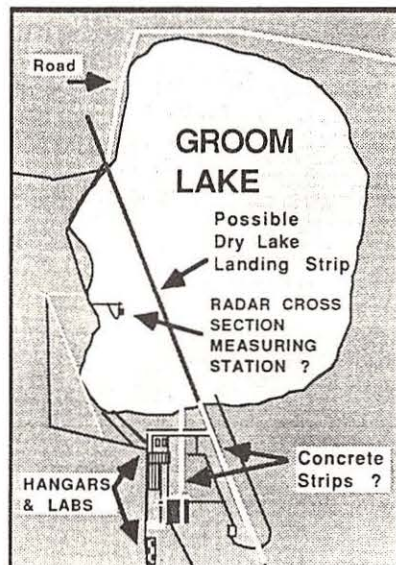
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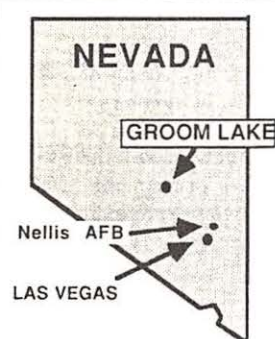


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GROOM LAKE AREA 51/ S-4

Drawing based on Eros Data Center satellite photo.



Note: The extreme length of the dry lake runway suggests that hypersonic aircraft are being tested at Groom Lake. A mach 5 plus aircraft would need a very long runway to stop.

Weather and Navigational Warnings

Before leaving the house many of us check the weather forecast so that we might dress appropriately. Also, before venturing into snarled traffic, we want to know if alternate routes should be considered, or whether going out should be postponed pending more favorable conditions.

In the maritime world the same is done, only on a much larger scale. Ship captains and navigators need to know what weather to expect and what precautions must be taken. Navigators also need to know if aids to navigation are not working

or if there are new hazards which must be avoided. Captains must be kept aware of any dangers which their ships may face so that they can make appropriate plans.

Most maritime coast stations broadcast weather forecasts for the areas for which they habitually provide coverage (the waters adjacent to their country's coast) and they also provide navigational warnings for that area as well. There is, however, a system in place for the reporting of important navigational information on a worldwide basis. Many stations broadcasts the Navarea warnings which are concerned with information of value to ocean-going vessels for safe navigation. These messages are transmitted along with any coastal and local messages.

For the purpose of Navarea warnings, the world is divided into twelve regions which cover the world between seventy degrees south and north. (See sidebar.)

The warnings contain information about lights, fog signals, and buoys on main shipping channels; dangerous wrecks and their marking; large unwieldy tows in shipping lanes; drifting mines; search and rescue (SAR) and anti-pollution operations (for avoidance); ships or aircraft on or over the open ocean reported in distress or seriously overdue; newly discovered rocks, reefs, shoals, wrecks, etc., and their marking.

Unexpected alteration or suspension of established routes may be due to such activities as cable or pipe-laying operations, the towing of submerged objects for research, or submarine operations which could constitute a danger to shipping. Navarea warnings might report the establishment of off-shore rigs in or near shipping lanes, malfunctions of radio navigation aids, and information about other operations (sometimes over large areas) which might affect shipping safety, including naval operations, missile firings, etc.

Within each area, Navarea warnings are consecutively numbered starting over from 1 each year. The warnings are broadcast from coast



Photo by Paul Mundt

This radio room aboard Carnival's Festivale ship has several transceivers operating mainly in the 8 to 12 MHz bands producing between 1200 to 1500 watts.

stations within or adjacent to the areas.

The other important information which ships need to ensure their safety is the weather forecast. Generally speaking, weather broadcasts for large ocean areas are broadcast from coastal high seas stations. Usually, these forecasts will give current conditions, a synopsis of weather systems and their expected movement and then the actual forecast itself. These can be useful not only to those traveling in the areas concerned, but also to those tracking weather systems.

If you are an amateur weather forecaster, or like to see what happens to the weather, these forecasts can be quite interesting. During hurricane or typhoon season they can be especially useful in tracking movement of storms. The listings below, and those continuing in the May issue will point you in the right direction for hearing weather and navigational warning broadcasts:

Halifax Coast Guard Radio (VCS)

CW weather broadcasts:

0130, 0930, 1530, 2030 UTC
4285, 6491.5, 8440, 12874, 16948.5, 22619.5 kHz

SSB weather broadcasts:

0205, 0805, 1605, 2205 UTC
4408, 6513, 8785, 13113, 17251, 22732 kHz

SSB notices to shipping broadcasts:

0335, 0735, 1535, 2135 UTC
4408, 6513, 8785, 13113, 17251, 22732 kHz

Navarea Regions

Navarea I covers the North Atlantic Ocean and extends to the Greenland, English, Northern European, and Scandinavian coasts.

Navarea II covers the Southern European and Atlantic African coasts as far south as 6 degrees south.

Navarea III covers the Mediterranean Sea.

Navarea IV includes the Atlantic Ocean off North America as far south as 7 degrees north, including the Caribbean.

Navarea V includes the Atlantic Ocean off South America between 7 degrees north and 35 degrees 50' extending to mid-ocean.

Navarea VI includes the South Atlantic off the South American coast.

Navarea VII is the ocean area around southern Africa.

Navarea VIII includes the northern part of the Indian Ocean.

Navarea IX is the area of the Arabian Sea.

Navarea X is the ocean surrounding Australia.

Navarea XI includes the islands north of Australia and the western Pacific Ocean between the Equator and 45 degrees north.

Navarea XII is the Pacific Ocean off North and Central America and South America south to 3 degrees 25' south.

Navarea XIII includes the North Pacific off the Asian and (former) Soviet Coast.

Navarea XIV is the ocean area east of Australia, between Navarea X and Navareas XV and XVI.

Navarea XV extends south of 18 degrees south and east of 120 degrees west and lies off the Pacific South American coast.

Navarea XVI extends west of the middle South American coast north of Navarea XV to 3 degrees 25' south.

RTTY weather, notice to shipping and traffic list broadcasts

0630 UTC 4213.5 kHz
1630 UTC 8419.5 kHz
2300 UTC 4213.5 kHz

Vancouver Coast Guard Radio (VAI)

CW weather broadcasts:

0230, 0630, 1830 UTC
4235, 6493, 8453, 12876, 17175.2 kHz

SSB weather broadcasts:

0200, 0700, 1900 UTC
4284.0 kHz

RTTY weather, notice to shipping and traffic list broadcasts:

0200, 0700 UTC 4124.5 kHz
0230, 0730, 1930 UTC 8428.5 kHz
1900 UTC 12599.5 kHz

Portishead Radio

CW weather broadcasts: (GKA)

0930, 2130 UTC (plain language)
4286, 6368.9, 8545.9, 12822, 17098.4, 22487 kHz

1130 UTC (analysis in figures)

4286, 6368.9, 8545.9, 12822,
17098.4, 22467 kHz

0130, 0530, 0730, 0930, 1130,

1330, 2130 UTC (storm warnings)

4286, 6368.9, 8545.9, 12822, 17098.4, 22467 kHz

CW Rigmov broadcast: (GKA)

Tues. 1730 UTC, Wed. 0730 UTC

4286, 6368.9, 8545.9 kHz

Thurs. and Sunday 1330 UTC

12822, 17098.4, 22467 kHz

RTTY databank

Portishead Radio maintains a radiotelex databank which can be queried by ships using the GKE series of radio telex transmitters. This databank includes weather forecasts and navigational warning information.

4211, 6315, 8417, 12580, 16807.5, 22377 kHz

Weather and navigational broadcasts are interesting and useful things to listen to and next time we will continue with schedules for these broadcasts beginning with Scheveningen Radio in Holland and including a map of the Navareas.

Until next time, give these a try and enjoy.



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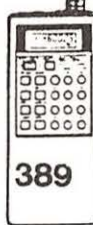
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ICOM R-71A 100khz-30mhz, Digital, 32 Memories 849.00
ICOM R-7000 25-2,000mhz, 100 Memories 1049.00
NRD-535 90khz-30mhz, Digital, 200 Memories 1589.00
DRAKE R8 100khz-30mhz, Digital, 100 Memories 959.00
FRG-8800 150khz-30mhz, 12 Memories, Scans 679.00
GRUNDIG 500 1.6-30mhz, Memories, Scans 499.00
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SONY SW7600 150khz-30mhz + FM + SSB, Memories 219.00
KENWOOD RZ-1 60-905mhz, 100 Memories, Digital 499.00

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BC-760xt, 100ch, 29-54, 118-174, 406-512, 806-950 279.00
BC-855xt, 50ch, 29-54, 108-174, 406-512, 806-956 209.00
BC-800xt, 40ch, 29-54, 118-174, 406-512, 806-912 269.00
AOR SCANNERS
AOR-1000XC, 500khz-1,300mhz, 1000ch, Search, ETC 389.00
AOR-2500 1-1,500mhz, 2016ch, Search, Lockout, ETC 469.00
AOR-2800 500khz-1,300mhz + SSB, 1000ch, Search, ETC 389.00
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Northern Catches

Canada, which is home to some of the highest powered beacons in the world, is often overlooked as a source for productive late winter DXing. This month, we'll identify some stations that can be heard and see how their signals differ from those of US beacons.

My inspiration for this article comes from two New York DXers: Robert Stone of Schodack Landing and Jim Keller of Lockport. Both of these long-wave listeners, or LWLs, sent me lists of their intercepts that included a heavy emphasis on Canadian beacons. It became apparent that while DXing beacons north of the border was very rewarding, not much was being written about it in longwave circles.

Robert is no stranger to low frequencies (LF). He's an ex-Navy pilot who once relied on non-directional beacons, or NDBs, for navigation. Now on terra-firma, he still enjoys sifting through the band for aviation beacons using a Sangean ATS-803A. It's interesting to note that many of Robert's loggings were initially made during the summer months when LF reception can be most challenging. He stresses that "Summer is not a time to give up on beacon DXing!" Thanks, Robert; your loggings should be an inspiration to many of us as the warm weather again approaches.

Jim Keller is an avid DXer from the western end of New York State. His station lineup includes a Kenwood R5000 receiver, an LF Engineering active antenna and an MFJ-722 Audio Filter. Using a computer program, Jim put together a list of LF intercepts beyond 700 miles from his location.

Excerpts from both loggings appear below along with some selected Canadian listings from my copy of *The Aero/Marine Beacon Guide*. Happy hunting:



379	YBE	Uranium City, SASK	*
392	ML	Charlevoix, PQ	RS
395	YL	Lynn Lake, MAN	*
403	BK	Baker Lake, NWT	*
404	YSL	St. Leonard, NB	RS
405	YXL	Sioux Lookout, ONT	JK
409	YTA	Pembroke, ONT	RS
414	BC	Baie Comeau, ONT	RS

*Aero/Marine Beacon Guide

The chief difference between Canadian beacons and their US counterparts is in output power. With relatively few exceptions, the majority of beacons in the United States run less than 50 watts output. It's a far different story in Canada. To cover the many outlying areas, beacons there often pump out 500 watts or more.

You'll notice a lower pitched ID on most Canadian beacons—400 Hz compared to the 1020 Hz pitch that is standard in the US. Also, Canadian beacons incorporate a dash after the ID (DAID). Keep these key differences in mind and you'll know right away when you have a Northern catch.

With their high power and distinctive ID format, Canadian beacons are frequently heard well beyond their intended boundaries. With a little persistence, you should have little trouble logging several provinces and perhaps some of the major powerhouses of the Northwest Territories.

As with any beacon DXing, you'll get the best results by using your receiver's BFO along with a narrow filter setting. Of course, headphones are a big help, too. Many listeners are reporting excellent results by using their receiver's IF SHIFT control to tune into the upper sideband component of beacon signals.

The trick is to use the USB mode with the narrow filter enabled. You then adjust the IF SHIFT control for the upper sideband of the keyed beacon signal (typically 400 Hz for Canadians, 1020 Hz for US). This reception method provides much better sensitivity than regular AM reception and also makes it possible to separate "dueling" Canadian and US stations that are on the same carrier frequency.

If you're into QSLing, you should know that

Canadian NDB Engineers are generally very cooperative about responding to your prepared form card. In most cases, you should address your inquiry to the Transport Canada office nearest the beacon you seek to verify. For specific addresses, I use *The Aero/Marine Beacon Guide*. It lists information for virtually all Canadian beacons. The *Guide* is available for \$15 from Mr. Ken Stryker, 2856-G West Touhy Avenue, Dept. MT, Chicago, IL 60645.

Who says that QSL contests have to be limited to amateur radio? To buck this trend and to promote excellence in longwave listening, I'm offering a premier *Below 500 kHz* wall certificate to any reader who submits photocopies of QSLs from at least three Canadian provinces. Just send your copies along with two stamps to cover postage and your certificate will be on its way before you can say "CQ Contest!"

Speaking of signals north of the border, stay tuned to 300 kHz for Canada's only privately maintained beacon which returns to the air in May. According to *DX Ontario*, the journal of the DX Ontario Association, beacon 1L holds down this frequency with 18 watts from Lake Simcoe in Ontario. Besides boating season operation, test transmissions are available at other times by request. If you live close enough and would like to try hearing 1L, drop me a line and I'll supply the details.

End Notes

As I mentioned, 1020 Hz is the modulation of choice in the U.S. However, faithful contributor Perry Crabill, VA, has checked in with some interesting news. He recently found US beacons RQY, Elkins, WV (284 kHz) and LQK, Pickens, SC (408 kHz) using 400 Hz modulation despite being listed in his directory as 1020 Hz. It's unclear whether they were changed midstream or have been using 400 Hz from the start. Perry asks: "Is this a trend? Are other US beacons going to switch modulation to 400 Hz?"

None of the other logs I've received so far seem to indicate that a wholesale change is underway, but this does bear watching. Actually, I don't know of any official rule stating that US beacons must use 1020 Hz, it's just been the accepted US convention. Moreover, the FAA appears to want the option of 400 Hz, based on the wording from their 1984 contract with Scientific Radio Systems, Inc. This contract called for 145 microprocessor controlled beacons with 400 Hz/1020 Hz selectable modulation.

Perry also reports that he's now broken the 600 barrier in his quest for new beacon loggings. His total is now 601, and he included a list of the intercepts that put him over the top. I hope to share these in a future column.

See you again next month!



Freq	Call	Location	Contributor
201	X	Edmonton, ALTA	*
202	3C	La Prise Creek, BC	*
203	ZKI	Terrace, BC	*
208	YSK	Sanikiluaq, NWT	JK
214	YFL	Ft. Reliance, NWT	*
236	OW	Ottawa, ONT	RS
238	K5	Maple Creek, SASK	*
248	UL	Montreal, ONT	RS
254	YSU	Summerside, PEI	JK
263	YGK	Kingston, ONT	RS
305	YQ	Churchill, MAN	JK
332	YFM	La Grande, ONT	RS
334	P2	Wetaskiwin, ALTA	*
340	YY	Mont Joli, PQ	RS
362	SB	Sudbury, ONT	RS
365	MA	Mayo, YT	*
372	A	Prince Albert, SASK	*
374	SA	Sable Island, NS	JK
379	CM	Channel Head, NFLD	JK

Bob's Bargain Bin

Revisited

All items on this page are in LIMITED QUANTITIES, so act fast or they'll be gone!

DAMAGED EQUIPMENT (All prices INCLUDE shipping)

- 2 Icom R1 -- \$519.00 -- 1 with damaged manual, other with damaged manual and no charger hole dust plug.
- 1 Scanner Beam -- \$49.95 -- Scratches on boom.
- 1 BC 200XLT -- \$225.00 -- damaged packing material.
- 1 Icom R100 -- \$589.00 -- torn box.
- 1 Speco Amplified Speaked -- \$44.95 -- small scratch on case.
- 2 Seth Thomas 24 Hour Studio Clocks -- \$23.95 -- damaged packing box.

FACTORY NEW EQUIPMENT (Limited Quantities)

- 17 Seth Thomas 24-Hour Studio Clocks -- \$25.95 -- 13" Diameter.
- 2 Gaussmeters -- \$125.95 -- High AND Low readings (switchable from front panel).
- 12 Sangean ATS-808 -- \$165.95 -- AM, Stereo FM, 24hr. clock, 45 memory channels.
- 12 Digital Weather Stations (6 with software for computer, 6 with portable weather computer) -- either; \$248.95 -- Barometric pressure, Altitude, Wind speed and direction, inside and outside temperature, high and low temperature, windchill factor, 12/24 hour time, and with the optional rain collector, daily and accumulated rainfall.

Accessories for the Weather Station:

- 4 Rain Gauges -- \$49.95 -- comes with 40' of cable.
- 5 Portable Vinyl Carrying Cases -- \$9.95 -- Case for portable weather computer.
- 3 40' Extention Cable -- \$15.95 -- cable to connect the station and computer.
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The Station People Love: CIAO

DXers all over North America and beyond are hearing an exciting new Canadian radio station. It broadcasts 24 hours a day, in fifteen languages, using eleven towers on two frequencies. Many listeners are drawn to the station out of curiosity, just to discover its identity. You won't find it on shortwave. You must look lower. Much lower! It's almost on longwave! Tune in 530 on your AM dial to hear the sounds people love: CIAO.

If you speak Italian, German, Chinese, Portuguese, Sri Lankan, Slovenian, Afghani, West or East Indian, Croatian, Ukrainian, Polish, Iranian, or Spanish, there's a show for you on CIAO! On Sundays, you'll even hear English! A special program for immigrants from Canada's Province of Newfoundland is aired from 5:00 to 9:30 am, followed by half an hour devoted to Scots.

CIAO has become a lifeline to many immigrant communities. As the call letters imply, Italian is the predominant language. From 5:00 am to 5:30 pm weekdays, and various times during weekends, a full-time staff of 20 employees produce a variety of broadcasts in Italian from CIAO's studios in Brampton, Ontario, a Toronto suburb.

Programming in other languages is prepared by ambitious part-time employees and volunteers from the communities they serve. Some time slots are sold to independent producers for their exclusive use. These companies will deliver their programming to CIAO complete with commercials they have sold on their own. It provides direct access to the airwaves for a reasonable fee.

CIAO's audience does not lend itself to tabulation by the ratings services, since a large percentage of its listeners can't respond to the surveys, written in English. Word of mouth and advertiser response has replaced ratings as the key to financial success. CIAO Operations Manager, Rick Sargent, notices "a lot of positive response from both advertisers and listeners who call us saying 'Thank heavens you're out there.' Otherwise, they would be forced to listen to mainstream radio from the Toronto area."

Many people depend on CIAO as their link to their mother country's culture and heritage. Rick marvels at their loyalty. "There was a family who lived in Ottawa who commuted 150 miles to Peterborough every Sunday night. They would stay with friends so they could listen to our Sri Lankan program at 9:00 pm. Then, they would commute back to Ottawa when the show was over."

Innovation has always been a part of this station. It became the first all-disco music station in 1977, and was the first to feature an all-female announcing staff. In 1985, the station's original call letters, CKMW, were changed to CIAO, and it became Brampton's multi-cultural radio station. Rick sees it as a logical strategy. "Why try to compete with formats already serving people with many different musical tastes? We try to be a little bit different and serve the communities that don't have a voice on the radio."

CIAO's transmission facility is quite unusual, too. The station, originally known as CKMW, operated on 790 kHz. Many other stations use this frequency throughout North America. To protect the service areas of their broadcasting neighbors, CKMW operated with

"We try to be a little bit different and serve the communities that don't have a voice on the radio."

two completely different directional transmitting patterns. During the day, 3,000 watts were delivered to a tower configuration that resulted in a narrow cigar-shaped pattern beaming northeast. Operating power increased at night to 5,000 watts, and the towers were reconfigured to produce a slightly different transmitting pattern.

These limitations created spotty reception throughout the region of Peel, CKMW's main service area. When the facility changed ownership in 1983, engineering personnel were asked for suggestions to improve the signal. After long study, the decision was made to erect two additional towers to maximize the potential reach allowed under their license. Eleven towers now stand at the transmitter site! Only KLIF-AM in Dallas, Texas, is more complex. KLIF operates with two rows of six towers each, stretching over half a mile!

This adventure in broadcast engineering had only just begun when, "About three weeks after we had completed our work to improve the 790 kHz facility, another station, in Toronto, moved down the dial from 1320 kHz to 640 kHz. Their new frequency ended up interfering with us." Rick explains this oddity: "Another nearby station operates on 1430 kHz. Subtract 640 from 1430 and the result was 790. It wasn't happening everywhere, but in some areas you could hear three signals on our frequency, and only if you used a digital radio. Old-fashioned continuously tunable radios were not affected."

The Canadian Radio and Television Commission did not know how to remedy the problem. The interference was being generated in digital receivers, with no fault in any of the three station's transmitters or antenna systems. All of the broadcasters were in complete compliance with the specifications of their licenses. What could be done?

Another nearby station, CJFT in Fort Erie, Ontario, had been granted authorization to switch from 530 AM to 101.1 FM. CIAO immediately applied for, and was granted, a construction permit to operate on 530 kHz. Both 790 and 530 kHz are now in operation during a unique test period until the final proof-of-performance is filed and a permanent license is granted to CIAO for 530 kHz operation.

CIAO began testing on 530 kHz on September 1, 1991, with 250 watts. Daytime broadcasts are transmitted with a sloper antenna similar to those used frequently by shortwave listeners. It creates a directional pattern protecting the audience of CBEF, Windsor, Ontario, operating on 540 kHz. At night, CIAO uses a single tower for 530 kHz broadcasting, producing a nearly omnidirectional transmitting pattern heard hundreds of miles away. This low frequency, combined with an excellent antenna system, provides amazing coverage using very little power.

CIAO's transmissions on 790 kHz should end forever by this summer. 530 kHz will become their sole frequency. Only two towers are required for broadcasting on 530 kHz. The other nine towers will be abandoned and dismantled. With only a handful of stations using 530 kHz, CIAO broadcasts on one of the clearest channels currently in use.

CIAO Radio encourages reception reports and comments from DXers and listeners everywhere. Please enclose at least one International Reply Coupon and a self-addressed return envelope.

Be an American BandScan Reporter.

See any stories about radio in the local paper? Send them to Monitoring Times, PO Box 98, Brasstown, NC 28902.

lope with your letter. Write to: Rick Sargent, CIAO Radio, 50 Kennedy Road South, Unit #20, Brampton, Ontario, L6W 3R7, Canada. Tune in 530 AM tonight!

Bits 'N' Pieces

The future looks bright for AM radio. The band will expand to 1700 kHz this year, and new AM stereo high fidelity radios should be in your stores soon. Ten frequencies will be added, from 1610 to 1700 kilohertz, to be used by AM stations you already know and love. A select group of established broadcasters will transmit in this new portion of the band, simulcasting with their current AM frequencies, for up to five years. When listeners have become accustomed to the change, the old lower frequency will go silent. As the number of transmitters on each frequency decreases, reception will improve nationwide. The new AM frequencies will be loaded with broadcasts in high fidelity AM stereo using the latest equipment available.

You might have heard Travelers Information Stations on 530 and 1610 kHz in your car from time to time. These stations will now be eligible to apply for licenses to operate on any available AM frequency across the dial. All TIS stations operating on 1610 kHz probably will move, making way for commercial broadcasters.

Many AM stations are suffering from poor advertising sales and a difficult economy. Liberal tax credits will be issued to those who decide to close their doors forever, creating another incentive to vacate frequencies.

The future of stations who simulcast their FM programs on AM will be discussed and reevaluated soon. If new rules are created to prevent duplicate programming on AM-FM stations, many broadcasters may not be able to afford to program both their frequencies independently. These marginally profitable AM outlets might leave the air, as well.

Radio manufacturers are preparing to market new high fidelity stereo AM radios. Look for the "AMax" trademark identifying these receivers, later this year, in stores across the country. As a result of all these changes, AM radio may soon become an avenue for alternative programming with much less annoying interference and clutter.

Mailbag

Radios will not go silent in Plentywood, Montana. Joy Fanning, the owner and sole operator of KATQ AM and FM, was about to pull the plug on the only station in the area. KATQ's former sales staff could not sell air time to a county filled with businesses near failure. Radio

station operations became spartan without advertising income. For three years Joy ran the station herself, keeping expenses at a minimum. Debtors began pounding at

her door. The end was near!

A retired farmer, Mary Nielsen, and local pharmacist, Robert Mann, led a community campaign to raise money to buy the station and make it a non-profit entity. They managed to collect \$142,000, with no single donation exceeding \$5,000, from local listeners.

"We'd be without anything that would do local news and items of local interest without KATQ," Mary said. "It's strictly a homebody station. Dogs get lost and cats get lost. Somebody's house is on fire. Last year, the high school burned down. It's been a series of tragedies, but we think we've turned it around." The people of Sheridan County in Northeast Montana have become an inspiration to all. MT reader Ron Carruthers informed us of this welcome news.

New Station Grants

Here are the latest stations across the nation, as reported by *The M Street Journal*: Fresno, CA 99.3; Niceville, FL 100.3; Hali'imaile, HI 105.5; Wallace, ID 100.7; Springfield, IL 90.5; Wabash, IN 105.9; Shreveport, LA 102.9; Ely, MN 92.1; Faribault, MN 107.5; Tuckerton, NJ 99.7; Shawnee, OK 95.1; Millersburg, PA 98.9; Wakefield, RI 99.7; Amarillo, TX 100.9; Floresville, TX 89.7; New Braunfels, TX 89.9; Spokane, WA 96.9; and Ohsweken, ON 100.3.

For Sale

- Is Georgia on your mind? Here's a great opportunity for first-time buyers! Purchase an AM daytime-only station, in the Southeast portion of the Peach State, and get an authorization to build a new Class A FM free! Real estate around the AM antenna site is included. The asking price is \$60,000 cash. Call Bob at 912-354-5057.

- A construction permit for a new 100,000 watt FM station in Las Cruces, New Mexico, is now available. Buy the entire station, or become a partner with its current owner. It will operate on 99.5 megahertz, covering Southwestern New Mexico and El Paso, Texas. Call 505-525-3294 for details.

- Big Sky Country is calling all aspiring radio station owners! Powerhouse KMCM-FM and KMTA-AM are the voice of Miles City, with an enormous audience entirely covering South Eastern Montana. All their equipment is new, in mint condition; and sales are growing due to a steady local economy. Their asking price is

\$595,000. Call Paul at 612-222-5555 for more information.

International Bandscan

Non-commercial radio is alive and well in Taiwan. International Community Radio Taipei (ICRT) broadcasts 24 hours a day in English, and has become the number one station in the capital city. You'll hear comprehensive news coverage and cultural information, along with a variety of music and community events when you tune to FM 100.

The primary language on Taiwan is Chinese, but the population seems to be fascinated with American culture. American top 40 songs are constantly requested by locals using American sounding nicknames. To become fluent in English has become a very important skill. A successful career in business or politics is often dependent on being bilingual. A doctorate degree from an American institution is a cherished asset in the Taiwanese business world. "It's kind of a hobby for yuppies to listen to ICRT," said Tina Ma, ICRT's public relations director. "It's very fashionable to be seen listening to ICRT, because it implies a relaxed familiarity with American culture."

ICRT thrives upon unusual programming and ingenious promotional events to maintain its key position with the audience. Talk shows concerning Chinese culture, the environment, local charities, and political issues air weekly to arouse community interest in listeners. Everyone enjoys ICRT's International Young Stars competition! Over 1,000 aspiring entertainers compete annually for a recording contract and monetary prizes. ICRT also inspired 18,000 people to "Give a Day to Taipei" to clean up the city's parks. Every Christmas, thousands of dollars pour into the station in support of ICRT's "Light Up A Life" charity drive.

Sister station AM 576 plays non-stop Chinese and international pop music attracting a younger audience. "Taiwan Top 20," presented Sundays from 9 to 11 am, is the most-listened to program in Taiwan! Both stations are descendants of the American Armed Forces Network Taiwan, which left these frequencies in 1978. ICRT and AM 576 followed shortly thereafter. On Taiwan, the place to be is ICRT!

Credits

Many thanks to Rick Sargent at CIAO Radio. Also thanks to readers Ron Carruthers, Hugh Miller, Malcolm Kaufman, W. Earle Doan, Wayne Hutsul, Edward C. Bennett, Ed Bugliarelli, Paul vanBeverhoudt, Keith Short, and Michael Csontos. Additional information culled from *The M Street Journal*, *Broadcasting Magazine*, *Radio World*, *The British DX Club*, *The Free China Journal*, and the *New York Times*. Until next month, happy trails!



IT'S BACK!



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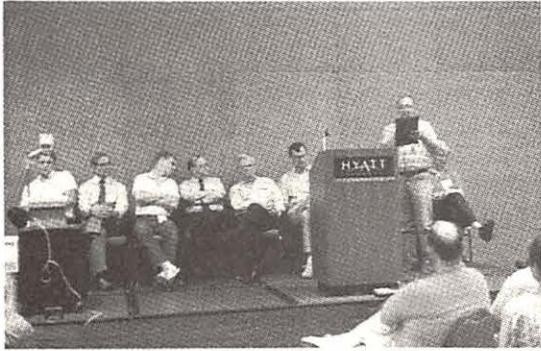
Your registration gives you entrance to all 40 seminars being presented Friday through Sunday and the exhibit hall. The exhibits alone feature over 50 displays from manufacturers and distributors of your favorite radio equipment and accessories, as well as international broadcaster displays.

AND, your registration includes a FREE TOUR of the Cable News Network (CNN), the leading news source that brings the emotion of war, the power of entire nations being built, and the thrill of opportunity home to millions of viewers around the nation.

PLUS, for only \$69 per night (regular price, \$185.00!), you can immerse yourself in the hobby for the entire weekend while enjoying the comforts of the prestigious Omni Hotel at CNN Center in the heart of Atlanta. But make your reservation early; space is limited!



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- *Setting up a Scanner Listening Post
- *Monitoring Military Communications
- *Satellite Monitoring
- *Digital Communications
- *Surveillances
- *Beginner's Workshop

Tentative Schedule

Friday, October 2

12:00 to 5:00 PM
EXHIBITS OPEN AND
REGISTRATION BEGINS

7:00 to 9:15 PM
EVENING SEMINARS

Saturday, October 3

8:00 to 9:00 AM
REGISTRATION

9:00 to 12:30 PM
EXHIBITS OPEN AND
MORNING SEMINARS

12:30 to 3:00 PM
EXHIBITS OPEN AND
LUNCH BREAK

3:00 PM
EXHIBITS CLOSE

3:00 to 5:15 PM
AFTERNOON SEMINARS

7:00 to 9:00 PM
BANQUET

Sunday, October 4

9:00 to 12:30 PM
MORNING SEMINARS

CONVENTION CLOSING AT 12:30 PM

The Monitoring Times Convention Banquet, Saturday evening, is an elegant "all-you-can-eat" feast in a comfortable atmosphere. Highlighted by a noted radio authority as guest speaker, you will be surrounded by friends and fellow hobbyists making this dinner a special occasion.

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You will receive a registration package within 10 days after receipt of payment.

Be a part of the 1992 Monitoring Times Convention and save \$7.00 by signing up today! Return this registration along with your payment and you too can take a step into the future.

What Do I Do Now?

After getting on the air and chatting with different folks, some questions may begin to emerge in the new ham's mind. Things like: do I want to work DX? handle traffic? work for awards? get on digital modes or TV? and on and on. Not everyone follows the same path and that's the nice thing about ham radio!

The average new ham will be interested in finding out just what he can do with his station and sets about trying to work DX (long distance). Before too long, thoughts of working all continents or all the states emerge, and our neophyte embarks on his quest.

Doing It

This is fine; we have set a goal and are working towards completing it. But to ensure success some planning and organizing is in order.

To illustrate how to begin organizing let's choose a specific objective. In this case we will assume our goal is to work all of the continents and win the WAC (Worked All Continents) award issued by the ARRL.

First: Find out what is required to earn the award. In this case, it is to work an amateur station on every continent and obtain a written confirmation (QSL card) from that station. Note: there are several different WAC awards issued by the ARRL for different modes (such as CW, Phone, RTTY, etc.), or for low power, or for working all continents on various bands (such as 160 meters). We are assuming the new ham will work for the basic award which is simply for working a station on each continent on any mode/band.

Second: Some method of tracking our progress is in order. We should be keeping a log of all of our contacts, and as a new continent is worked it is noted in the log. Each station you work must send a confirmation card (QSL) to you which is submitted to the ARRL as proof of having worked that station. This QSL must supply the following information: Time/date of the contact, signal strength, mode and frequency.

Since QSL cards are required, you should start a separate log sheet just for the award. I find it best to have a heading for each continent and under the continent there should be sub headings labeled as follows: Station Worked, date/time, frequency, mode, signal report sent and QSL received. (From this data you can prepare a second or third card if necessary.) Leave room for at least five contacts (a whole page is best) under each continent heading. The reason for this is that often a station worked will not QSL, or his QSL will be a long time coming and you may

AFRICA

Station	Date	Time(UTC)	Freq.	Mode	RST	QSL Rcvd
9L1TL	11/01/91	1721	21.055	CW	569	
ZS1CFS	01/01/92	1658	21.036	CW	589	YES 01/26/92
3X0HFN	01/10/92	1805	21.024	CW	599	

Table 1

receive a card from a station that was worked more recently than the initial contact. As the cards are received be sure to check them off and store them in a safe place. Your Certification Log should look something like Table 1.

As you can see, three African stations were worked and one card received; now you can be certain you have that continent confirmed.

The same general style of log-keeping can be used for any award you choose to go after.

Third: Find out when the best time is to work a given continent. This is easily accomplished by checking the propagation charts in *Monitoring Times* or in any other ham magazine. If you match your frequency to the time of day when conditions are optimum to work that particular area of the world success will follow!

The idea here is not to turn you into a serious award hunter, but simply to help you understand that achieving any goal (with a minimum of frustrations) requires some planning. I am sure that over the years your desires and goals in ham radio will change many times.

Old Sol Smiles

A year after the peak of the current sunspot cycle the sun continues to generate loads of sunspots making things hop on our higher frequency bands. During December and January numbers exceeding 200 were generated and there is no sign this activity will abate in the near future.

USSR

The breakup of the USSR has brought some mail problems for amateurs. If you are sending any mail to Russia be sure to seal envelopes with tape. Do not put any call signs on the envelope and use regular stamps.

The above practices should be observed when sending mail to most third world countries, too.

Morse Machine

Over the years I have used many different electronic keyers; and for the most part I was not satisfied with any of them. That is not to say they are not good, but I've never been at ease using them. Prior to the electronic key era, I was a bug user and the "dah" memory in most keyers was

simply too fast for me. No matter how hard I tried, my hand held the dah paddle too long, resulting in an extra dah tacked onto the end of my characters. I did want to use a keyer for contesting and general use, because the memory feature of the new units makes things so easy. What to do?

Enter the AEA (Advanced Electronic Applications) Morse Machine. Upon reading the specs for this keyer, it appeared that the unit was designed according to my specs! Needless to say an order went in the same day. A week later the keyer arrived and was put into service the same day. Did I like it? You bet!

Features

The features that I like the most is being able to use the keyer like a bug. That is, as long as I hold the dah down, the keyer sends a long dah. Now that I am accustomed to using the machine, I have eliminated the dah memory and am able to use the automatic dah feature. Which of course makes my sending sound a lot better.

The machine can also be used for straight keying, Iambic and Curtis A & B. Consequently any type of keying you are accustomed to can be emulated by the Morse Machine. There is a paddle reverse command available from the keyboard to accommodate different types of paddles, too.

Of course there is memory—8K of it which can be easily expanded to 32K. Along with the memory is an automatic serial number generator, which is invaluable during contests. Accessing the memory is as easy as punching a single key on the keypad. There are 20 different memories available.

There is also an optional serial port so you can enter commands from a computer keyboard. Using the input port you can also load memories simply by typing them on your computer.

In addition, the Morse Machine features a beacon keyer, a DX contest simulator, and a QSO simulator so you can practice DX contesting or rag chewing without going on the air. A random letter and four-letter word generator provide good practice for increasing code speed.

These are the major features of this wonderful keyer. There are numerous other practical features included with the Morse Machine, but we simply do not have space to discuss all of them. If you have a pet feature for a keyer, chances are good you will find it on this unit!

Rob Lavender's

Ham DX Tips

AUSTRALIA Special station VI150SYD (QSL to WIA Special Event, P.O. Box 1066, Parramatta, NSW 2124, Australia; they request a 6-1/4" by 4-1/2" SAE and one IRC please!) will be active through the remainder of 1992 to celebrate the sesquicentennial of Sydney.

CANADA March 1 to 30 April, Canadian amateurs may use the special prefixes listed below in honor of the 100th anniversary of the founding of the Geological Survey of Canada: VE1=VG1, VE2=VG2, VE3=VG3, VE4=VG4, VE5=VG5, VE6=VG6, VE7=VG7, VE8=VG8, VO1=XJ1, VO2=XJ2, VY1=CG1, VY2=CG2, and the new special prefix VY9=CG9.

CENTRAL AFRICAN REPUBLIC Margret Bendi, TL8MB, has been transmitting RTTY on or near 14090 kHz at 2130 UTC daily. You may send your QSL requests to her QSL manager: Howard Barbrey, KB9XN, 306 Greenfield Cir., Geneva, IL 60134.

CLIPPERTON ISLAND Several US hams hope to begin a DXpedition on this uninhabited, French-owned island southwest of Mexico in the Pacific, for seven to ten days starting around 10 March. The operation will have two stations operating around the clock and will operate CW, SSB, and RTTY on 10 to 160 meters. Check near the "usual DX freqs" (CW: 3505, 7005, 14025, 21025, and 28025 kHz; SSB: 3795, 7050, 14145, 21295, 28495 kHz). A QSL route will be announced at the time of the operation by the operators.

GUERNSEY GU4XGG at 1830 UTC can be found on 21345 kHz. QSL to: Ronald Grove, Villa d ARC Enciel, Rue du Passeur, Vale, Guernessey, United Kingdom.

LEBANON OD5MM, Irma, has been on 28480 kHz daily starting at 1330 UTC. Due to recent changes in the political climate in Lebanon, Irma may be announcing a new QSL route at the time that you read this, so follow the instructions she advises on the air.

LIBERIA EL2W has been on 18113 kHz SSB at 2130 UTC most days. QSL to: Dwight, Radio ELWA, Box 192, Monrovia, Liberia

NIGER This is one of those countries where there has been little ham activity and especially on certain bands like 30 meters. Now 5U7M can be logged on 10.102 kHz CW daily at 2200 UTC. QSL to: P.O. Box 377, Tokyo Central, Japan. 5U7M is a Japanese amateur working in Niger.

PITCAIRN Now you can log this rarely heard Pacific Island on 12 meters, 24960 kHz to be exact, at 1530 UTC. QSL to: P.O. Box 21, Pitcairn Island, and be patient as it takes a while for mail to reach the people here and to get a reply.

VATICAN CITY Daily HV0SJ appears on 18130 kHz SSB at 1900 UTC most days. The QSL manager for this station is: IOUDUD, Giuseppe d Aurello, Via Antonio Fogazaro 87, Roma, Italy.

I would like to point out that while we list specific frequencies where rare and DX amateur operators often appear, there are times that you may tune to the frequency and not hear the DX listed. Keep in mind that the specific DX you are looking for may be only a few kHz above or below the frequency listed to escape adjacent QRM of nearby operations. Also, there are two DX contests this month, which often yield the rare or semi-rare DX countries. These are the ARRL SB DX contest on the weekend of 7 and 8 March, and the CQ World Prefix, often referred to as the "WPX" contest, on the weekend of 28 and 29th. Remember that contest operations only take place on the 160, 80, 40, 20, 15, and 10 meter bands and the exchanges are rapid so you'll often have to listen close to get those DX callsigns. Until next time, good DX and 73 de Rob.

The Morse Machine is \$189 and should be available at your local ham dealer. If not, contact AEA at PO Box C2160/2006, 196th St. SW, Dept. MT, Lynnwood, WA 98036-0918.

That concludes this session of "On The Ham Bands." Please drop me a letter or card and let me know what you would like to see in your column.

73 Ike, N3IK



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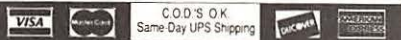
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P.O. Box 189, Melvin Village, NH 03850 (603) 544-2110

The Soviet News Agency, TASS

TASS is the abbreviation for "Telegrafnoye Agentstvo Sowjetskogo Sojuz." Most Americans can't pronounce it! But if you needed the latest scoop on what's going on in Russia, you used to be able to tune to 14.899. The shift was usually 425 Hz but I normally caught them using 375 Hz at 50 baud. Now, Chuck Yarbrough, SPEEDX Utilities columnist, has verified for us what we suspected when monitors reported silence from TASS for an entire week: The Cuban-based station has shut down.

It is a great loss to the hobby. Even though TASS was used as a "Cold War" weapon they did transmit a few news worthy items. For the most part, until "Perestroika" (restructuring) came along, the news was quite stifled and the only thing that they broadcast was news about how bad living conditions were in the US and how every one in the USSR was employed.

It appears that the news items have taken a ninety degree turn. Since the Chernobyl accident, TASS focused less on the spreading of propaganda material. Below is a copy of a news item that I copied on December 26. Unfortunately, because of holiday festivities, I was unable to copy TASS on Dec 25 when Mikhail Gorbachev resigned.

This was copied on DEC 26 1991, one day after Mikhail Gorbachev resigned. I used a Kenwood TS440S and a Universal M7000. I copied the text using communications software with a Tandy 1000TL connected to the M7000 expansion port.

TASS CORRESPONDENT TAMARA ZAMFNICID:

FORMER SOVIET PRIME MINISTER NIKOLAI RYZHKOV BELIEVES THAT "PERESTROIKA ENDED ON WEDNESDAY TOGETHER WITH SOVIET PRESIDENT MIKHAIL GORBACHEV'S STATEMENT ABOUT RESIGNATION". IN A TASS INTERVIEW, RYZHKOV DESCRIBED THE PRESENT PERIOD AS "TROUBLED TIMES". NEVERTHELESS HE VOICED HOPE THAT CENTRIPETAL FORCES WOULD PREVAIL AND THE FORMATION OF THE NEW

COMMONWEALTH WOULD BE COMPLETED WITHOUT UPHEAVALS SIMILAR TO THOSE TAKING PLACE IN GEORGIA.

RYZHKOV, WHO WAS GORBACHEV'S CLOSEST ASSOCIATE DURING THE FIRST YEARS OF PERESTROIKA (RESTRUCTURING), DID NOT CONCEAL HIS SURPRISE AT THE FACT THAT SUCH A "MASTER OF COMPROMISE AND MANOEUVRE" AS THE FORMER PRESIDENT OF THE SOVIET UNION, PROVED UNSUCCESSFUL IN HIS ATTEMPTS TO FIND HIS PLACE WITHIN THE FRAMEWORK OF THE COMMONWEALTH OF INDEPENDENT STATES.

THE FORMER PREMIER, WHO HAD WORKED WITH MIKHAIL GORBACHEV FOR SEVEN YEARS, BEGINNING FROM 1983, DID NOT HEAP REPROACHES UPON HIS FORMER BOSS, SAYING THAT HE WOULD NOT "START THROWING STONES AT THE OUTGOING PRESIDENT". ITEM ENDS

MSK 18.41 26-12-1991
NNNN

Packet Spies??

It was brought to my attention by an MT reader that there appears to be some sort of scrambled packet radio on 5745 kHz. The packet header along with the call appears to be in the clear but the text is jumbled. The packets, as I received them, were sent from "AAA*" to CQ. It's possible that the mode is normal packet and the text is scrambled using special software that runs on a PC.

The software is used by some computer users that send E-mail over a network such as "USENET" or Compuserve. They do it so that the "system manager" at a college or corporation can't read their mail. The computer system manager, so I'm told, has the ability to retrieve mail and to monitor anyone that is on or routes through the system.

It's also believed by some computer E-mail users that the CIA has the ability to capture the same messages.

NNN

The "Packet Spy" text as I copied it using an Icom R71, an AEA PK232, a Compaq Deskpro computer and a DSP25 filter.

```
21:11:34 AAA*>CQ:
nOCUijKWIA][SemO@hDd'vYwNU@YZej@Q[ @LQUO
21:11:59 AAA*>CQ:
QepiOIEUWFA][SemO@XEdkvYwNMCVZ~n@'hS@NQUc
21:12:21 AAA*>CQ:
QSpkSpplG@pTA@'ojV
21:12:31 AAA*>CQ:
nIOCTHEVO@k@~_@@@PUi
21:12:51 AAA*>CQ:
QepiOjftm~@@RzSemO@xLP*IfH@qR}geQQ_ofsnMs@Dt_ofjjip
21:13:41 AAA*>CQ: nOCUjTe~@@iB@nZR\@hwORIFH@qR~oewn@@_jqnM_GGPajjjip
21:13:47 AAA*>CQ:
nOCUjHdGASX@nZRYWNHfIfH@Tm@PZ{n@@oqqnMz@XsoPvUUUO
21:14:58 AAA*>CQ:
```

This Month's Loggings

CALL	TIME	FREQ	SH/BD	AGENCY
4OC2	02:00	05.240.0	425/50	TANJUG-Yugoslavia
YZJ5	04:00	13.440.0	425/50	TANJUG-Yugoslavia
HMF52	04:00	11.476.0	250/50	KCNA-North Korea
FZN7	04:00	20.078.0	425/50	DIPLO-France
HMF42	04:00	12.175.0	250/50	KCNA-North Korea
FZM62	04:00	16.106.0	425/50	DIPLO-France
HMF36	04:00	13.580.0	250/50	KCNA-North Korea
YZD	04:15	07.658.0	425/50	TANJUG-Yugoslavia
HMF32	04:45	14.568.0	425/50	KCNA-North Korea
REN30	04:50	15.575.0	425/50	TASS-USSR
A9M70	05:30	14.764.0	350/75	GNA-Bahrain
JAL54	05:30	14.595.0	850/50	KYODO-Japan
RNK36	06:00	14.490.0	425/50	TASS-USSR
BZR66	06:15	16.136.0	425/75	XINHUA-PRC
JAG50	06:20	10.795.0	425/50	KYODO-Japan
HMF57	08:00	14.452.0	250/50	KCNA-North Korea
JAL44	08:00	14.547.5	850/50	KYODO-Japan
IRF50	08:30	08.030.0	425/50	ANSA-Italy
9HC67	09:00	14.573.0	850/50	JANA-Libya
—	09:05	14.640.0	425/50	KPL-Laos
ZAT	09:17	09.430.0	500/50	ATA-Albania
CLN219	09:30	08.140.0	425/50	PL-Cuba
—	09:32	14.932.0	850/50	APS-Algeria
ZAA6	09:45	09.133.0	500/50	ATA-Albania
CNM69	10:00	15.999.9	425/50	MAP-Morocco
HMF46	10:15	10.580.0	425/50	KCNA-North Korea
CNM66X2	10:25	15.752.7	425/50	MAP-Morocco
TCY4	10:55	18.040.0	850/50	AA-Turkey
JA50	11:00	10.200.0	850/50	JJJI-Japan
HMF49	11:40	11.536.0	250/50	KCNA-North Korea
REB24	12:00	14.700.0	425/50	TASS-USSR
ISX25	12:20	24.271.5	425/50	ANSA-Italy
RWM77	12:50	16.145.0	425/100	APN-USSR
BZP54	12:55	14.367.0	425/75	XINHUA-PRC
YZJ6	12:55	15.705.0	425/50	TANJUG-Yugoslavia
YIL73	13:00	14.373.0	425/50	INA-Iraq
RGW28	13:20	16.140.0	425/50	TASS-USSR
YZI4	13:20	16.343.0	425/50	TANJUG-Yugoslavia
RKB70	13:20	20.964.6	425/50	TASS-USSR
YZJ	13:30	20.204.0	425/50	TANJUG-Yugoslavia
CNM61	13:30	14.760.0	425/50	MAP-Morocco
CNM80	13:50	18.496.1	425/50	MAP-Morocco
IRS23	14:00	20.372.0	425/50	ANSA-Italy
SOV293B	14:00	20.933.5	SITOR-B	PAP-Poland
XVM3	14:00	13.656.0	425/50	VNA-Vietnam
CLN451	14:00	14.901.0	425/50	PL-Cuba
3MA35	14:00	16.224.0	850/50	CNA-Taiwan
ISX20	14:00	20.085.0	425/50	ANSA-Italy
SOV228B	14:10	20.286.5	SITOR-B	PAP-Poland
RCC79	14:15	19.210.0	850/50	TASS-USSR
3MA22	14:30	13.563.0	850/50	CNA-Taiwan
CLN530	14:30	16.348.0	425/50	PL-Cuba
RND70	14:30	18.125.0	425/50	TASS-USSR
RRQ20	15:10	18.385.0	425/50	TASS-USSR
ATP65	15:20	14.785.0	600/50	MEA-India
CNM85	15:35	19.171.1	425/50	MAP-Morocco
EPJ2	16:00	19.980.0	425/50	IRNA-Iran
RBI78	16:00	15.930.0	425/50	TASS-USSR
5AQ88	16:00	20.560.0	425/50	JANA-Libya
6VK317	16:00	16.117.0	425/50	PANA-Senegal
YZJ4	16:10	19.865.0	425/50	TANJUG-Yugoslavia
RQV70	16:15	18.050.0	425/50	TASS-USSR
ISX22	16:30	22.955.0	425/50	ANSA-Italy
YIX70	16:30	14.699.0	425/50	INA-Iraq
ISX24	16:40	24.790.0	425/50	ANSA-Italy
—	17:30	18.788.0	250/50	SUNA-Sudan
5AQ62	18:00	12.186.0	425/50	JANA-Libya
HMF55	22:00	11.430.0	250/50	KCNA-North Korea
SUA251	22:30	10.610.0	425/75	MENA-Egypt
SUA246	22:45	10.150.0	425/75	MENA-Egypt
—	23:00	10.805.0	850/75	NA-Argentina
LRO2	23:00	04.004.5	850/50	TELAM-Argentina
LRB39	23:05	10.893.5	850/50	TELAM-Argentina
—	23:05	07.428.5	850/50	TELAM-Argentina
YZD7	23:45	07.806.0	425/50	TANJUG-Yugoslavia

Thank You Goes a Long Way

So ... you just received a QSL from your favorite shortwave station, huh?

Congratulations, but before you scratch that station off your want list, why not take it one step further in the form of a thank you postcard or letter?

Stations appreciate your response, and it may lead to a continued correspondence with the station or a penpal. Give it a try ... it's a nice personal touch to add to the hobby!

AIRCRAFT TRAFFIC

EMERY WORLDWIDE-Flight 480, DC-8, 132.175 MHz. Full data friendly letter verified by John R. Burkhardt-Supervisor, Charter Services. Received in 16 days for an English Utility report, and mint postage. Airline address: One Emery Plaza, Dayton International Airport, Vandalia, OH 45377. (Hank Holbrook, Dunkirk, MD)

CG RESCUE 1488 (HH-3F0, 5696 kHz USB. Unsigned, no data prepared QSL card, with notation "received and confirmed." Received in 39 days for an English Utility report, SWL station card, and mint postage. Aircraft address: Commanding Officer, USCG Air Station Cape Cod, Otis AFB, MA 02542-5024. (Preston Sewell, Newark, NJ)

CANADA

Gander Aeradio, 5615.0 kHz USB. Full data prepared QSL card, verified by Wayne J. Lorenzen-Public Relations Officer. Form letter and info brochure on Gander Int'l Flight Service Station included. Received in 17 days for an English Utility report, SWL card, and one IRC. Station address: c/o Telecommunications Area Manager, Transport Canada, 89 Edinburgh Ave., Gander, NFLD A1V 1C9, Canada. (Sewell, NJ)

CHINA

Xinhua News Agency, 9417 kHz. Full data English station letter, verified by Xie Shenghe. Received in 57 days for an English report, and souvenir postcard. Station address: Technical Dept., 57 Xuanwumen Xidajie, Beijing, China. (Mark Burkart, New Orleans, LA)

HONDURAS

HRVC, 4820 kHz. Full data QSL card, verified by Orfa Duron-Secretary. Received in 86 days for an English report. Station address: Apartado Postal 3252, Tegucigalpa, D.C., Honduras. (Ed Mayberry, Cedar Park, TX)

JAPAN

NHK-Sapporo, 3970 kHz. No data color studio photo card, for reception while stationed on Okinawa. Received in 520 days (through three address changes) for an English report, and one IRC. Station address 1, Ohdori Nisha, Chuo-ku, Sapporo 060, Japan. (Mike Hardester, Jacksonville, NC)

MALTA

RadioDeutsche Welle Relay, 9565 kHz. No data QSL card, with preprinted Peter Senger as veri signer. Received in 55 days for an English report. Station address: c/o North American Service, P.O. Box 10 04 44, W-5000 Cologne 1, Germany. (Nicholas P. Adams, Newark, NJ)



Ray Labrie of Portsmouth, New Hampshire, received this QSL from the Voice of the Mediterranean, Malta.

MEXICO

XEOI, Nucleo Radio Mil, 6010 kHz. Full data prepared QSL card, verified by Zoila Quintanar Flores. Received in 80 days for a Spanish report and mint postage. Station address: Insurgentes Sur 1870, 01030, Distrito Federal, Mexico. (Hardester, NC)

PARAGUAY

Radio Nacional del Paraguay, 6025 kHz. Partial data verification letter on station letterhead, verified by Filemon G. Arguello M. Received in 6 months for an English report. Station address: Oliva y Alberdi, 6 piso M.O.P.C. Asuncion, Paraguay. (Alberto Araujo, Cocoa Beach, FL)

PIRATE

Mystic Voice of the Western Prairie, 7415.8 kHz. Full data green card with Conestoga wagons, without veri signer. Also received a two page article on "Forgotten Treasure: Our Tall-Grass Prairie." Received in 120 days for an English report, mint postage, and a self-addressed envelope. Station address: c/o P.O. Box 109, Blue Ridge Summit, Pa. 17214. (Larry Van Horn, New Orleans, LA)

SHIP TRAFFIC

KALLIO-P3EJ3, 157.100 MHz (General Cargo). Full data prepared QSL card with ship's stamp, verified by D.P.K. Jayasuriya-Radio Officer. Received in 30 days for an English Utility report, one IRC, a self-addressed envelope, and mint postage. Ship address: c/o Narval Shipping, 1 Markas Stoa St., 185 31 Piraeus, Greece. (Russ Hill, Ferndale, MI)

REGINA OLDENDORFF-VPGB, 156.600 MHz (Bulk Carrier). Full data prepared QSL card with ship's stamp and photo, verified by Jun P. Talinio-Radio Officer. Received in 23 days for an English Utility report, one IRC, a self-addressed envelope, and mint postage. (Hill, MI)

USCGC Tamaroa (WMEC-166) 6200.0/6506.4 kHz USB. Full data prepared QSL card. Received in 12 days for an English Utility report, SWL station card, and mint postage. Ship address: c/o Radioman-in Charge, USCGC Tamaroa (WMEC-166), Coast Guard Station, New Castle, NH 03854-0615. (Sewell, NJ)

SEA COMMERCE-DGZU, 156.65 MHz (Container Ship). Full data prepared QSL card verified. Received

in 116 days for an English Utility report and one US dollar. Ship address: Dal Deutsche Afrika Linien GmbH, Palmalle 45, Postfach 500369, D-2000, Hamburg, Germany. (Holbrook, MD)

M/V GREEN BAY, 2182.0 kHz USB (Car Carrier). Full data prepared QSL card, verified by Kiky Mistry-Electronics Officer, and personal info letter on ship. Received in 13 days for an English Utility report, SWL station card, and mint postage. Ship address: c/o Central Gulf Lines Inc., P.O. Box 53366, New Orleans, LA 70130. (Sewell, NJ)

SRI LANKA

Sri Lanka Broadcasting Corp., 9645 kHz. Full data color studio photo card, verified by H. Jernando-Director of Audience Research. Received in 18 days for an English report. Station address: P.O. Box 574, Torrington Square, Colombo 7, Sri Lanka. (Dave Frenz, Milwaukee, WI)

VATICAN STATE

Radio Vaticana, 11625 kHz. Full data station antenna card, without veri signer. Received in 88 days for an English report. Station address: Vatican City, Vatican State, Italy. (Stephen R. Hunter, Drexel Hill, PA)

VENEZUELA

Radio Nacional de Venezuela, 9540 kHz. Full data QSL card, verified by Martin Delfin-English News Director. Personal letter, stickers, and schedules included. Received in 77 days for an English report. Station address: P.O. Box 3979 y 50700, Caracas 1050, Venezuela. (Mayberry, TX) (Frenz, WI)

YVTO, 5000 kHz. Full data QSL on station logo card, verified by Fernando Aranda Griman. Received in 2 months for an English report. Station address: Estacion Transmisor YVTO, Apartado Postal 6745, Caracas, Venezuela. (Araujo, FL)

YUGOSLAVIA

Radio Yugoslavia, 11735 kHz. Full data color scenery card, without veri signer. Received in 71 days for an English report. Station address: P.O. Box 200, Hilendarska 2, 11000 Beograd, Yugoslavia. (Hunter, PA)

The Legend Returns:

From Virginia Pat Murphy has forwarded us a copy of the "Laryngitis Silence Monitor." This newsletter is produced by the folks responsible for one of the all-time classic pirate stations, The Voice of Laryngitis. Back in the '80s Cowboy Stan, Rev. Billy Bob Huxley, J. Eager Heaver, and others brought some of the most zany and entertaining sounds ever heard to your radio. Their QSLs were also prized gems. Then the gang decided to go into retirement.

Now, according to the newsletters, popular demand has brought them back. The transmitter has been "disinterred," and broadcasts have begun again. As previously reported in this column, former VOL programs are also being relayed by other stations, which is perfectly fine with Cowboy Stan and his associates. We cannot give you times and frequencies. One reason this station has managed to survive is because it has always been careful about releasing that sort of thing. However, if you are fortunate enough to come across this one, sit back and enjoy.

The VOL says they will QSL either original broadcasts or relays. Send three mint first-class stamps with your report to Box 452, Wellsville, NY 14895. And don't let this stop you from listening, but beneath the VOL's humor, I sometimes detect a serious message.

Meanwhile, Pat must have come close to setting some sort of record for pirate loggings in recent weeks. Here is a sample of what he managed to find. On 7386 at 2255 **Hope Radio International** showed up with an "awesome" signal and Phil Musik of KNBS as host. The "Amazing Mumford" was hosting the show on WNOT, which appeared on 7415 at 2232.

CSIC (pronounced sea-sick) claimed to be broadcasting from Canada on 15055 at 2005

UTC. Reports can be sent to Box 109, Blue Ridge Summit, PA 17214. CSIC also uses 7414 kHz.

Radio Strange found its way to Virginia on 7416 at 0335. **Jolly Roger International** arrived on 15050 at 0015.

And Pat had some success with a Euroirate: England's **Live Wire Radio** with Bill Lewis came in on 15049 from 0012 to 0029. Pat adds he got a nice package of information from the station along with a very attractive QSL.

Much, Much, More:

Don't get the idea that Pat is the only one with success these days. The mail has been quite impressive as of late. Our regular California reporter, Skip Harwood, was pleased to go to his mailbox and find a **Magic Carpet Radio** QSL and information sheet from Magic Mike and Wanda B. English. Skip also heard his report acknowledged over the air on a 7415 kHz broadcast from 0159 to 0220. His was the first report received by the station.

Probably no station is being as widely heard lately as **WBKY**. In fact some reporters write it may be maintaining too extensive schedule for its own health. Among the places it is turning up is Michigan where George Stoner found it on 7415 at 0240.

It is good to hear from Florida's Mike Seiden again. On 7415 in USB at 0320 he came across an unidentified station relaying licensed **WZZO**, 95.1 FM, in Bethlehem, Pennsylvania. Mark notes the relay inserted a humorous commercial of its own into the **WZZO** program. Also making it into Mark's log book was **WSKY** on 7415 at 0245.

In Wisconsin, Glenn Waber was giving Pat Murphy competition for "the most logs award." Among these was **WRFW** on 7414 at 0310. **WRFW** also turned up on 7416 at 0210.

WLR Wire Line Radio announced 1000 watts on 7415 at 0305 UTC. Glenn also found them with 300 watts on 7417.3 at 0130. **Voice of Bono** is back and showed up on 7414 at 0231. The station mentioned some of its Canadian listeners. And an old timer, **Secret Mountain Laboratory**, came in on 7470 at 0354. I suspect this may have been a tape of a past broadcast.

Radio Freedom was bagged by Charles Horan in California on 7416 at 0030. Previously Charles found them at 0130.

Among those entering **WBKY** into their log book is first-time reporter Bill Dickerman of Pennsylvania. Bill heard them in SSB on 7415 at 0419. Nice going, Bill. Hope to hear from you again.

I enjoyed hearing from Kentucky's R. C. Watts, who heard my presentation on unlicensed broadcasting at the MT Convention in Knoxville. He said that got him interested in seeing what he could hear. Well, R.C., it looks like you are having a lot of success and certainly much more than I have had of late! Among others, he found **He Man Radio** on 15055 at about 2045. The pirate **CKLW** was on 150525 around 2200. **KXXVI Interplanetary Radio** was heard on 7415 at 0035 and **Radio Lymph Node International** at 2347 on 7413.

West Virginia's Dwight Weidman has become a frequent reporter to this column. He came across an unusual station recently which undoubtedly was seeking to commemorate the late President John F. Kennedy. Station **WJFK** played a portion of the song "Abraham, Martin, and John." This piece, of course, is in memory of Abraham Lincoln, Martin Luther King, and Kennedy. **WJFK** was transmitting on 7415 from 2300 to 2312.

New York's Mark Henning can also claim a log of **WSKY** on 7415. The station is now using the Wellsville, NY, address given previously.

Finally, I think Alan Masyga of Minnesota must hold the record for hearing **Radio USA** more than anyone else. They made yet another appearance on 7416.8 in LSB at 0124.

It's Not Over 'Til It's Over

So said the twentieth century sage Yogi Berra. A detailed article in the *Spotlight* indicates that is also the philosophy of Tom Reveille of California's Radio Free Venice. Reveille has now been raided twice, his entire household searched, much equipment seized, and according to Reveille, personal correspondence and financial records confiscated.



Photo of WORK's "Workline plus news action studios."

Controversial programming may have helped attract this attention, say non*Spotlight* sources. But the broadcaster vows to continue his legal battle. He makes the claim the United States Constitution gives him the right to broadcast provided his signal (which was a low-watt FM one) does not cross a state line and no advertising is accepted.

The Radio Free Venice story is attracting quite a lot of attention, and it could become a significant test case. Thanks to Tom Doubek for sending us this information.

On The Other Side

There is a good deal of news coming from Europe these days. Connecticut's Bob Thomas writes that Radio Dublin is back! During the glory days of Irish piracy Radio Dublin was heard all over Europe and North America, even making it to the West Coast. Bob reports hearing them once again at 0600 on the old frequency 6910. Log this while you can. It could disappear again.

Martin Lester says things remain relatively quiet in England. In the West Midlands most pirate FM stations are based in Birmingham and Wolverhampton and survive because they are located in parts of the cities where even the police fear to go. There are no medium wave pirates in that part of England at present.

Martin was kind enough to send an extensive Euro-address list from the *Free Radio Quarterly*. If anyone needs a Euro-pirate address or is interested in subscribing to this, contact Box 1116.

Another English reader, John Bull, brings us up to date on the Radio Caroline saga. As he predicted, Radio Caroline is going to use Radio Fax's facilities in Ireland. Look for them on 6205 and 12255. For a real challenge try the new frequency of 3910. Radio Fax has excellent facilities and is not too difficult to hear in the United States.

We have previously reported that the former home of Caroline, the *Ross Revenge*, broke her anchor chain in a nasty storm and wound up on a sandbar. The ship was eventually towed to the port of Dover. At present no one can visit it, but there are plans to ultimately turn it into a tourist attraction.

Via Terry Krueger of DX South Florida we have heard that Jack Russel of Scotland's Weekend Music Radio said our previously published report that his Cambridge, England, maildrop was closed by MI-5 was not correct. Jack should know, and he is highly reliable. The original report was anonymous and sent by fax. We have no idea as to its origin.

So much is happening in what was the former Soviet Union that it is almost impossible to keep track of it. This is as true of the broadcast-

ing situation as anything else. Awhile back Ary Boender in the Netherlands sent us a list of stations which had recently come on the air. Some of these are probably licensed and others not. Undoubtedly given the very unstable situation disappearances, additions, and frequency changes are to be expected. However, to give you an idea of some of those on shortwave, here are a few: Radio DVR Khabarovsk (4050, 5965, 9560 kHz); Radio Novaya Volna, Novosibirsk (6115); Radio Mari, Yushkar Ola (6125); Radio Kazan, Samara (6115, 7285, 17890); and Radio Ufa (4485).

Bob Thomas notes the North American service of Radio Moscow has become a casualty of the upheaval. For now, at least, the World Service continues. He adds that some Radio Moscow frequencies may be put up for sale to private interests to raise badly needed cash.

Bob sent along the schedule of the widely-heard Russian private station Radio Ala. Best time to hear this is probably when on 5040 kHz between 2200 and 0700. It puts in a decent signal here in Central Florida and features Russian folk music, mostly played on a guitar. If you want to try for a QSL, the address is Box 159, Moscow, 125047, but mail service presently is somewhat erratic. Bob says the now independent (and also a nuclear power!) Kazakhstan has a broadcast Monday, Wednesday, and Friday on 5915 from 0130 to 0200 with an English ID. There is even a tourist information station on shortwave in Moscow. It is Traffic Radio Studio broadcasting on 9695.

Final Notes

Bob Thomas believes he has heard the return of Radio Baghdad in English. This was briefly on 11830 at 2300 sign off. He says Cuba's Radio Rebelde has had some experimental transmissions 24 hours daily on 3365.

The BBC Monitoring Service reports the following schedule for Croatian radio: 1900 to 0600 on 9830 and 6210 kHz, and 0600 to 1900 on 9830 and 7240 kHz. You may hear some English on this. The BBC also reports a clandestine hostile to the Kuomintang government of Taiwan on 9990 from 1159 to 1359. It IDs as Voice of Taiwan and transmits in Amoy and Standard Chinese.

Frank McGuire sent us material from the *Foreign Broadcasts Information Service*, published by the CIA. The pro-Sandinista recompas have taken credit for damaging two Nicaraguan radio stations, Radio Dario in Leon and Radio San Cristobal in Chinandega. The stations were said to be "mouthpieces of reactionary and ultrarightist interests."

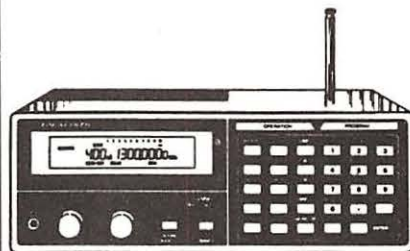
I occasionally hear some amateur operators criticize pirates. Tune in 14313 for the other side of the story.



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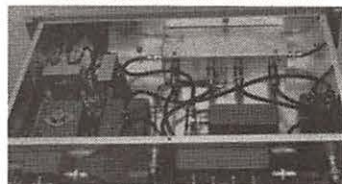
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Ph. (315) 769-8334

How to Use the Shortwave Guide

1: Convert your time to UTC.

Eastern and Pacific Times are already converted to Coordinated Universal Time (UTC) at the top of each page. The rule is: convert your local time to 24-hour format; add (during Standard Time) 5, 6, 7, or 8 hours for Eastern, Central, Mountain, or Pacific Time, respectively.

Note that all dates, as well as times, are in UTC: for example, the BBC's "Ken Bruce Show" (0030 UTC Sunday) will be heard on Saturday evening (7:30 PM Eastern, 4:30 PM Pacific) in North America, not on Sunday.

2: Choose a program or station you want to hear.

Some selected programs appear on the lower half of the page for prime listening hours. If it's news you're interested in, check out the complete "Newsline" listing, which begins on the next page.

Occasionally program listings will be followed by "See X 0000." This information indicates that the program is a re-run, and refers to a previous summary of the program's content. The letter stands for a day of the week, as indicated below, and the four digits represent a time in UTC.

S: Sunday
M: Monday
T: Tuesday
W: Wednesday
H: Thursday
F: Friday
A: Saturday

3: Find the frequencies for the program or station you want to hear.

Look at the page which corresponds to the time you will be listening. Comprehensive frequency information for English broadcasts can be

found at the top half of the page.

The frequency listing uses the same day codes as the program listings; if a broadcast is not daily, those day codes will appear before the station name. Irregular broadcasts are indicated "tent" and programming which includes languages besides English are coded "vl" (various languages).

4: Choose the most promising frequencies for the time, location, and conditions.

Of course, every station can't be heard all the time. To help you find the right frequency, we've included information on the target area of each broadcast. Frequencies beamed toward your area will generally be easier to hear than those beamed elsewhere, even though the latter will often still be audible. Every frequency is followed by one of these target codes:

am: The Americas	me: Middle East
na: North America	as: Asia
ca: Central America	au: Australia
sa: South America	pa: Pacific
eu: Europe	va: various
af: Africa	do: domestic broadcast
me: Middle East	om: omnidirectional

Consult the propagation charts. To help you further find the right frequency, we've included propagation charts at the back of this section, which take into account conditions affecting the audibility of shortwave broadcasts. Simply pick out the region in which you live and find the chart for the region in which the station you want to hear is located. The chart indicates the optimum frequencies for a given time in UTC.

Programs for Shortwave Listeners

This section lists programs with news and information about shortwave radio for listeners. (RR) denotes reruns of programs broadcast earlier in the week. For brevity, only programs at certain peak listening times are included.

Sundays

0025 Spanish Foreign Radio: DX Spot
0035 BRT, Brussels: Radio World
0035 Radio Havana Cuba: DX'ers Unlimited
0039 HCJB: DX Party Line
0110 Voice of America (Americas, Caribbean): Communications World
0125 Spanish Foreign Radio: DX Spot (RR)
0215 KSDA, Guam: DX Asiawaves
0218 Swiss Radio Int'l: Swiss Shortwave Merry-Go-Round
0230 Radio For Peace Int'l: World Of Radio
0235 Radio Budapest: DX News
0235 Radio Havana Cuba: DX'ers Unlimited (RR)
0239 HCJB: DX Party Line (RR)
0245 Voice of Free China: Radio Corner
0330 Radio Japan: DX Corner
0330 TWR, Bonaire: Bonaire Wavelengths
0405 WWCR: World Of Radio
0418 Swiss Radio Int'l: Swiss Shortwave Merry-Go-Round (RR)
0435 Radio Havana Cuba: DX'ers Unlimited (RR)
0509 HCJB: DX Party Line (RR)
0525 Spanish Foreign Radio: DX Spot (RR)
0635 Radio Havana Cuba: DX'ers Unlimited (RR)
1130 Radio Austria Int'l: Austrian Shortwave Panorama
1430 Radio Australia: Communicator
1530 Radio Austria Int'l: Austrian Shortwave Panorama (RR)
1530 Radio Japan: DX Corner (RR)

Mondays

0130 Radio Japan: DX Corner (RR)
0345 Voice of Free China: Radio Corner (RR)
0430 Radio New Zealand Int'l: Mailbox (biweekly)

0630 Radio For Peace Int'l: World Of Radio (RR)
1430 Radio For Peace Int'l: World Of Radio (RR)
1437 BRT, Brussels: Radio World (RR)
1530 WRNO: World Of Radio
2320 Radio Vilnius: Feature For DX'ers

Tuesdays

1313 Radio Sweden: Sweden Calling DX'ers (biweekly)
1543 Radio Sweden: Sweden Calling DX'ers (biweekly) (RR)
1610 Polish Radio, Warsaw: DX Program
2315 Polish Radio, Warsaw: DX Program (RR)
2343 Radio Sweden: Sweden Calling DX'ers (biweekly) (RR)

Wednesdays

0113 Radio Sweden: Sweden Calling DX'ers (biweekly) (RR)
0213 Radio Sweden: Sweden Calling DX'ers (biweekly) (RR)
0235 Radio Budapest: DX News (RR)
0400 Radio For Peace Int'l: World Of Radio (RR)
0415 BBC: Waveguide
0640 Polish Radio, Warsaw: DX Program (RR)
1200 Radio For Peace Int'l: World Of Radio (RR)
1440 Polish Radio, Warsaw: DX Program (RR)

Thursdays

0100 HCJB: Ham Radio Today
0130 BBC: Waveguide (RR)
0235 Radio Budapest: DX World
0300 HCJB: Ham Radio Today (RR)
0530 HCJB: Ham Radio Today (RR)
1154 Radio Netherlands: Media Network

1454 Radio Netherlands: Media Network (RR)
1654 Radio Netherlands: Media Network (RR)

Fridays

0016 Radio Prague Int'l: DX Special
0054 Radio Netherlands: Media Network (RR)
0116 Radio Prague Int'l: DX Special (RR)
0316 Radio Prague Int'l: DX Special (RR)
0354 Radio Netherlands: Media Network (RR)
0416 Radio Prague Int'l: DX Special (RR)
0430 Radio Australia: Communicator (RR)
2300 WWCR (Program Two): World Of Radio (RR)

Saturdays

0235 Radio Budapest: DX World (RR)
0241 Radio Portugal: DX Program (monthly) (RR)
0400 Radio For Peace Int'l: World Of Radio (RR)
0430 Radio Sofia: Calling Amateurs And DX'ers
0648 Swiss Radio Int'l: Swiss Shortwave Merry-Go-Round (RR)
1118 Swiss Radio Int'l: Swiss Shortwave Merry-Go-Round (RR)
1200 Radio For Peace Int'l: World Of Radio (RR)
1210 Voice of America: Communications World (RR)
1318 Swiss Radio Int'l: Swiss Shortwave Merry-Go-Round (RR)
1348 Swiss Radio Int'l: Swiss Shortwave Merry-Go-Round (RR)
1435 BRT, Brussels: Radio World (RR)
1548 Swiss Radio Int'l: Swiss Shortwave Merry-Go-Round (RR)
1615 KSDA, Guam: DX Asiawaves (RR)
2330 KSDA, Guam: DX Asiawaves (RR)
2330 Voice of Turkey: DX Corner (biweekly)
2330 WRNO: World Of Radio (RR)

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California
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Maine

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Oklahoma
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Texas

newsline

"Newsline" is your guide to news broadcasts on the air. ■ All broadcasts are world news reports unless followed by an asterisk, which means the broadcast is primarily national news. ■ All broadcasts are daily unless otherwise noted by the day codes.

0000 UTC
(7:00 PM EST, 4:00 PM PST)

BBC
CBC, Northern Quebec [A]
Christian Science Monitor
Kol Israel
Radio Australia
Radio Beijing
Radio Canada Int'l
Radio Havana Cuba [T-S]
Radio Korea
Radio Luxembourg
Radio Moscow
Radio New Zealand Int'l [M-A]
Radio Prague Int'l
Radio Thailand
Radio Vilnius
SBC Radio 1, Singapore
Spanish Foreign Radio
Voice of America
0005
Radio Pyongyang
0010
Radio Beijing*
0030
BRT, Brussels
Christian Science Monitor (Asia) [M]
Christian Science Monitor [T-F]
HCJB
Radio Havana Cuba [T-S]
Radio Netherlands [T-S]
Voice of America (Americas, East Asia) (Special English) [T-S]
Voice of America (East Asia) (Special English) [M]

0045
Radio Korea (News Service)
0055
WRNO [W, F]

0100 UTC
(8:00 PM EST, 5:00 PM PST)

All India Radio
BBC
CBC, Northern Quebec
Christian Science Monitor
Deutsche Welle

FEBC Radio Int'l, Philippines
Kol Israel
Radio Australia
Radio Belize
Radio Canada Int'l [S-M]
Radio Havana Cuba [T-S]
Radio Japan
Radio Kiev
Radio Luxembourg
Radio Moscow
Radio New Zealand Int'l [M-F]
Radio Prague Int'l
Radio Tashkent
Radio Thailand
Radiotelevisione Italiana
RAE, Buenos Aires [T-A]
SBC Radio 1, Singapore
Spanish Foreign Radio
Voice of America
Voice of Indonesia
WWCR (Program Two) [T-A]
WWCR [T-A]
0115
Radio Havana Cuba* [T-S]
0130
Christian Science Monitor (Asia) [M]
Christian Science Monitor [T-F]
Radio Austria Int'l
Radio Havana Cuba [T-S]
Radio Yugoslavia
Voice of Greece [M-A]
0155
Voice of Indonesia
WRNO [W, A]

0200 UTC
(9:00 PM EST, 6:00 PM PST)

BBC
CBC, Northern Quebec [S-M]
Christian Science Monitor
Deutsche Welle
FEBC Radio Int'l, Philippines
Kol Israel
Radio Australia
Radio Budapest
Radio Havana Cuba [T-S]
Radio Luxembourg
Radio Moscow

Radio Romania Int'l
Radio Thailand
SBC Radio 1, Singapore
Swiss Radio Int'l
Voice of America
Voice of Free China
Voice of Myanmar
WWCR [T-A]
0215
Radio Cairo
Radio Nepal
0230
Christian Science Monitor
(Africa, Europe) [M]
Christian Science Monitor [T-F]
HCJB
Radio Havana Cuba [T-S]
Radio Moscow
Radio Pakistan (Special English)
Radio Portugal [T-A]
Radio Tirana, Albania
Radio Yugoslavia
0245
Radio Kiev
Radio Korea (News Service)

0300 UTC
(10:00 PM EST, 7:00 PM PST)

BBC
CBC, Northern Quebec [T-S]
Christian Science Monitor
Deutsche Welle
Radio Australia
Radio Bahrain
Radio Beijing
Radio Belize
Radio Havana Cuba [T-S]
Radio Japan
Radio Moscow
Radio New Zealand Int'l [M-F]
Radio Prague Int'l
Radio Romania Int'l
Radio RSA
Radio Sofia
Radio Tanzania
Radio Thailand
SBC Radio 1, Singapore
Swiss Radio Int'l
Voice of America
WRNO [F]
WWCR [T-A]
0310
Radio Beijing*

0315
Radio Cairo
Radio Havana Cuba* [T-S]
0330
BBC (Africa)*
Christian Science Monitor
(Africa, Europe) [M]
Christian Science Monitor [T-F]
Radio Austria Int'l
Radio Bahrain
Radio Havana Cuba [T-S]
Radio Netherlands [T-S]
Radio Tirana, Albania
UAE Radio, Dubai
0340
Voice of Greece [M-A]
0350
Radio Yerevan
Radiotelevisione Italiana
0355
Radio Japan [M-F]

0400 UTC
(11:00 PM EST, 8:00 PM PST)

BBC
CBC, Northern Quebec
Christian Science Monitor
Deutsche Welle
Radio Australia
Radio Bahrain
Radio Beijing
Radio Canada Int'l
Radio Havana Cuba [T-S]
Radio Moscow
Radio New Zealand Int'l [M-F]
Radio Prague Int'l
Radio Romania Int'l
Radio RSA
Radio Sofia
Radio Tanzania
Radio Thailand
SBC Radio 1, Singapore
Swiss Radio Int'l
Voice of America
WRNO [F]
WWCR [T-A]

0405
Radio Pyongyang
0410
Radio Beijing*
0425
Radiotelevisione Italiana
0430
BBC (Africa)* [M-A]
Christian Science Monitor
(Africa, Europe, NE Asia) [M]
Christian Science Monitor [T-F]
Radio Bahrain
Radio Botswana
Radio Havana Cuba [T-S]
0450
Radio RSA
0455
WYFR (Network) [T-A]

0500 UTC
(12:00 AM EST, 9:00 PM PST)

BBC ("Newshour")
CBC, Northern Quebec [T-S]
Christian Science Monitor
Deutsche Welle
HCJB
Kol Israel
Radio Australia
Radio Bahrain
Radio Beijing
Radio Havana Cuba [T-S]
Radio Japan
Radio Lesotho
Radio Moscow
Radio New Zealand Int'l
Radio Thailand
SBC Radio 1, Singapore
Spanish Foreign Radio
Voice of America
0510
Radio Beijing*
Radio Botswana
0515
Radio Havana Cuba* [T-S]
0530
Christian Science Monitor
(Africa, Europe, NE Asia) [M]
Christian Science Monitor [T-F]

newsline

Radio Austria Int'l
Radio Havana Cuba [T-S]
Radio Moscow (World Service)
Radio Romania Int'l
Radio Thailand
RTM, Malaysia
UAE Radio, Dubai
Voice of Nigeria
0550
Radio For Peace Int'l [T-A]

0600 UTC
(1:00 AM EST, 10:00 PM PST)

BBC
CBC, Northern Quebec
Christian Science Monitor
Deutsche Welle
GBC Radio, Accra*
Radio Australia
Radio Bahrain
Radio Havana Cuba [T-S]
Radio Korea
Radio Moscow
SBC Radio 1, Singapore
Voice of America
WWCR
0605
Radio Pyongyang
0609
BBC*
0610
Voice of Malaysia
0615
Radio Canada Int'l [M-F]
Radio Korea (News Service)
0630
BBC (Africa)*
Christian Science Monitor [M-F]
Radio Austria Int'l [T-A]
Radio Havana Cuba [T-S]
Radio Moscow (World Service)
Radio Polonia
RTV Congolaise, Brazzaville [M-F]
Swiss Radio Int'l
Voice of Nigeria
0640
Radio Prague Int'l
0645
Radio Romania Int'l

0700 UTC
(2:00 AM EST, 11:00 PM PST)

BBC
Christian Science Monitor
GBC Radio, Accra
Radio Australia
Radio Havana Cuba [T-S]
Radio Japan
Radio Moscow
Radio New Zealand Int'l [M, F-A]
SBC Radio 1, Singapore
SLBS, Freetown, Sierra Leone
Voice of Free China
Voice of Myanmar
WWCR [M-A]
0705
Radio Pyongyang
0715
Radio Havana Cuba* [T-S]
0730
BBC (Africa)* [M-A]
BRT, Brussels

Christian Science Monitor [M-F]
HCJB
Radio Ghana
Radio Havana Cuba [T-S]
Radio Moscow (World Service)
Radio Netherlands [M-A]
Radio Prague Int'l
Swiss Radio Int'l
0745
Radio For Peace Int'l [T-A]
0755
Radio Japan [M-F]

0800 UTC
(3:00 AM EST, 12:00 AM PST)

BBC
Christian Science Monitor
GBC Radio 1, Accra [S]
GBC Radio 2, Accra
Radio Australia
Radio Bahrain
Radio Korea
Radio Moscow
Radio New Zealand Int'l [M, W-H]
Radio Pakistan
SBC Radio 1, Singapore
SLBS, Freetown, Sierra Leone
Voice of Indonesia
0805
Radio Pyongyang
0810
Voice of Malaysia
0830
Christian Science Monitor [M-F]
Radio Austria Int'l
Radio Moscow (World Service)
Radio Netherlands [M-A]
Swiss Radio Int'l
0840
Voice of Greece [M-A]
0855
Voice of Indonesia

0900 UTC
(4:00 AM EST, 1:00 AM PST)

BBC
Christian Science Monitor
Deutsche Welle
GBC Radio 1, Accra [M-F]
GBC Radio 2, Accra
Radio Australia
Radio Bahrain
Radio Beijing
Radio Finland [M-F]
Radio Japan
Radio Moscow
Radio New Zealand Int'l
SBC Radio 1, Singapore
Voice of Nigeria
0910
Radio Beijing*
0915
Radio Korea (News Service)
0930
Christian Science Monitor [M-F]
Deutsche Welle (Africa)* [M-F]
Radio Afghanistan
Radio Moscow
0950
Radio Finland [M-F]
Radio Tikhiv Okean [S]
0955

Radio Japan [M-F]

1000 UTC
(5:00 AM EST, 2:00 AM PST)

All India Radio
BBC
BRT, Brussels [M-A]
Christian Science Monitor
GBC Radio 2, Accra [A]
HCJB
Radio Australia
Radio Bahrain
Radio Beijing
Radio Moscow
Radio New Zealand Int'l [M]
Radio RSA
Radio Tanzania
SBC Radio 1, Singapore
Swiss Radio Int'l
Voice of America
1010
Radio Beijing*
1030
Christian Science Monitor [M-F]
Radio Korea
Radio Moscow
Radio Netherlands [M-A]
RTM, Malaysia
UAE Radio, Dubai
Voice of Nigeria
1040
Voice of Greece [M-A]
1055
All India Radio

1100 UTC
(6:00 AM EST, 3:00 AM PST)

BBC
Christian Science Monitor
Deutsche Welle
GBC Radio, Accra [A-S]
Kol Israel
Radio Australia
Radio Bahrain
Radio Beijing
Radio Japan
Radio Korea
Radio Moscow
Radio New Zealand Int'l [T-W]
Radio Pakistan
Radio RSA
SBC Radio 1, Singapore
Swiss Radio Int'l
TWR, Bonaire [M-F]
Voice of America
1105
Radio Pakistan (Special English)
Radio Pyongyang
1110
Radio Beijing*
Radio Belize [T-A]
Radio Botswana [M-F]
1115
Radio Korea (News Service)
Radio Nepal
1125
Radio Belize [M]
Radio Botswana [A-S]
1130
Christian Science Monitor [M-F]
Deutsche Welle* [M-F]
Radio Austria Int'l [M-F]

Radio Lesotho
Radio Moscow
Radio Netherlands [M-A]
RTM, Malaysia*
1135
Radio Thailand
1150
Radio RSA
1155
Radio Japan [M-F]

1200 UTC
(7:00 AM EST, 4:00 AM PST)

BBC
CBC, Northern Quebec [A-S]
Christian Science Monitor
Radio Australia
Radio Bahrain
Radio Beijing
Radio Bras, Brasilia [M-A]
Radio Jordan
Radio Moscow
Radio New Zealand Int'l
Radio Polonia
Radio Romania Int'l
Radio Tashkent
Radio Thailand
RTM, Malaysia
SBC Radio 1, Singapore
Voice of America
WWCR [M-F]
1209
BBC* [M-A]
1210
Radio Beijing*
1215
HCJB [M-F]
Radio Korea
1230
BRT, Brussels [S]
Christian Science Monitor [M-F]
Radio Cairo
Radio France Int'l
Radio Moscow
TWR, Bonaire [A]
1235
Voice of Greece
1257
HCJB [M-F]

1300 UTC
(8:00 AM EST, 5:00 AM PST)

BBC ("Newshour")
CBC, Northern Quebec [A-S]
Christian Science Monitor
GBC Radio, Accra
Radio Australia
Radio Bahrain
Radio Beijing
Radio Belize
Radio Canada Int'l [M-F]
Radio Moscow
Radio Romania Int'l
Radio Tanzania [A-S]
SBC Radio 1, Singapore
Swiss Radio Int'l
TWR, Bonaire [S-F]
Voice of America
WWCR [M-F]
1305
Radio Pyongyang
1310
Radio Beijing*

1325
HCJB [M-F]
1328
Radio Cairo
1330
All India Radio
Christian Science Monitor [M-F]
FEBC Radio Int'l, Philippines
Radio Austria Int'l [M-F]
Radio Canada Int'l
Radio Korea (News Service)
Radio Moscow
Radio Tashkent
RTM, Malaysia
Swiss Radio Int'l
UAE Radio, Dubai
Voice of America (Special English)
Voice of Turkey
1346
All India Radio [A]
1350
Radio For Peace Int'l [T-A]
1355
WYFR (Network) [M-F]

1400 UTC
(9:00 AM EST, 6:00 AM PST)

BBC
BRT, Brussels [M-A]
CBC, Northern Quebec
Christian Science Monitor
GBC Radio, Accra
Radio Australia
Radio Bahrain
Radio Beijing
Radio Belize [M-F]
Radio Canada Int'l [S]
Radio France Int'l
Radio Japan
Radio Jordan
Radio Korea
Radio Moscow
RTM, Malaysia*
SBC Radio 1, Singapore
Voice of America
1410
Radio Beijing*
1415
Radio Nepal
1425
HCJB [M-F]
1430
Christian Science Monitor [M-F]
FEBC Radio Int'l, Philippines
Kol Israel
Radio Moscow
Radio Netherlands [M-A]
Radio Polonia
1445
BBC (East Asia) (Special English) [M-F]
Voice of Myanmar
1455
All India Radio
Radio Finland [M-F]

1500 UTC
(10:00 AM EST, 7:00 AM PST)

BBC
CBC, Northern Quebec [A-S]
Christian Science Monitor
Deutsche Welle
GBC Radio 2, Accra

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An in-depth examination of frequencies and techniques used to eavesdrop on cellular and other car phones, ship-to-shore calls, cordless phones, more. \$12.95 plus 1.50 book rate or 3.00 UPS.

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Super Converter 9001 & Super Amplifier 3001



Super Converter II



Super Amplifier



All-Band Antenna

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newsline

Radio Australia
Radio Bahrain
Radio Beijing
Radio Belize [M-A]
Radio Canada Int'l
Radio Japan
Radio Moscow
Radio Romania Int'l
Radio RSA
RTM, Malaysia
SBC Radio 1, Singapore
Voice of America
WWCR [M-F]
1505
Radio Finland
Radio Pyongyang
1510
Radio Beijing*
1530
Christian Science Monitor [M-F]
Deutsche Welle* [M-F]
FEBA, Seychelles
FEBC Radio Int'l, Philippines
Radio Austria Int'l [M-F]
Radio Moscow
Radio Tirana, Albania
Swiss Radio Int'l
Voice of Greece [M-A]
Voice of Nigeria
1545
Radio For Peace Int'l [T-A]
Radio Korea (News Service)

1600 UTC
(11:00 AM EST, 8:00 AM PST)

BBC
CBC, Northern Quebec [A-S]
Christian Science Monitor
Deutsche Welle
GBC Radio 2, Accra
Radio Australia
Radio Bahrain
Radio Beijing
Radio Canada Int'l
Radio France Int'l
Radio Jordan
Radio Korea
Radio Lesotho
Radio Moscow
Radio Pakistan
Radio Polonia
Radio Portugal [M-F]
Radio RSA
Radio Tanzania
SBC Radio 1, Singapore
Voice of America
Yemen Radio
1609
BBC*
1610
Radio Beijing*
Radio Botswana [M-F]
1615
Radio Pakistan (Special English)
1630
Christian Science Monitor [M-F]
Radio Canada Int'l
Radio Moscow
Radio Netherlands [M-A]
Radio Polonia
UAE Radio, Dubai
Voice of America (except Africa)
(Special English)

1700 UTC
(12:00 PM EST, 9:00 AM PST)

BBC
CBC, Northern Quebec [A]
Christian Science Monitor
GBC Radio 2, Accra
Radio Australia
Radio Bahrain
Radio Beijing
Radio Belize [M-F]
Radio Canada Int'l
Radio Japan
Radio Jordan
Radio Moscow
Radio Pakistan
Radio RSA
Voice of America
1705
Radio Pyongyang
1710
Radio Beijing*
1715
Radio Korea (News Service)
1725
Radio Surinam Int'l [M-F]
1730
Christian Science Monitor [M-F]
Radio Moscow
Radio Romania Int'l
WYFR (Network) [A]
1735
WYFR (Network) [M-F]
1740
BBC (Africa)*
1750
Radio RSA

1800 UTC
(1:00 PM EST, 10:00 AM PST)

All India Radio
BBC
CBC, Northern Quebec [A]
Christian Science Monitor
GBC Radio, Accra
Kol Israel
KVOH
Radio Afghanistan
Radio Australia
Radio Bahrain
Radio Belize [M-F]
Radio Bras, Brasilia [M-A]
Radio Canada Int'l
Radio Korea
Radio Moscow
Radio New Zealand Int'l [S-F]
Radio Prague Int'l
Radio Tanzania
RAE, Buenos Aires [M-F]
Voice of America
1825
WYFR (Network) [A]
1830
Christian Science Monitor [M-F]
Radio Austria Int'l
Radio Belize
Radio Moscow
Radio Netherlands [M-A]
Radio Polonia
Radio Sofia
Radio Tirana, Albania
Swiss Radio Int'l
Voice of America (Special English)
1840

SLBC, Sri Lanka
Voice of Greece
1845
Radio Cote d' Ivoire, Abidjan
1855
BBC (Africa)* [M-F]

1900 UTC
(2:00 PM EST, 11:00 AM PST)

All India Radio
BBC
BRT, Brussels
CBC, Northern Quebec [M-H]
Christian Science Monitor [M-A]
Deutsche Welle
GBC Radio 2, Accra*
HCJB
KVOH
Radio Australia
Radio Beijing
Radio Canada Int'l [M-F]
Radio Havana Cuba [M-A]
Radio Japan
Radio Moscow
Radio New Zealand Int'l [S-F]
Radio Tanzania
SLBS, Freetown, Sierra Leone
Spanish Foreign Radio
Voice of America
1910
Radio Beijing*
Radio Botswana
1920
Voice of Greece
1930
Christian Science Monitor [M-F]
Deutsche Welle* [M-F]
Radio Ghana
Radio Havana Cuba [M-A]
Radio Moscow
Radio Prague Int'l
Radio Romania Int'l
Voice of Nigeria
1935
Radiotelevisione Italiana
1945
Radio Korea (News Service)
1955
BBC (Africa)* [M-F]
Radio Finland
WYFR (Network) [M-A]

2000 UTC
(3:00 PM EST, 12:00 PM PST)

BBC
Christian Science Monitor
GBC Radio, Accra
Kol Israel
KVOH
Radio Australia
Radio Bahrain
Radio Beijing
Radio Belize [M-F]
Radio Canada Int'l
Radio Havana Cuba [M-A]
Radio Moscow
Radio New Zealand Int'l [S-F]
Radio Polonia
SLBS, Freetown, Sierra Leone
Swiss Radio Int'l
Voice of America
Voice of Indonesia

Voice of Nigeria
2005
Radio Pyongyang
2010
Radio Beijing*
2025
Radio Havana Cuba* [M-A]
Radiotelevisione Italiana
2030
Christian Science Monitor [M-F]
Radio Havana Cuba [M-A]
Radio Korea
Radio Moscow
Radio Netherlands [M-A]
2045
Radio Korea (News Service)
Radio Sofia
2055
Voice of Indonesia

2100 UTC
(4:00 PM EST, 1:00 PM PST)

All India Radio
BBC ("Newshour")
CBC, Northern Quebec [S-F]
Christian Science Monitor [M-A]
Deutsche Welle
GBC Radio 2, Accra*
KVOH
Radio Australia
Radio Bahrain
Radio Beijing
Radio Belize [M-F]
Radio Budapest
Radio Japan
Radio Moscow
Radio New Zealand Int'l [S-F]
Radio Portugal [M-F]
Radio Prague Int'l
Radio Romania Int'l
SLBS, Freetown, Sierra Leone
Spanish Foreign Radio
Swiss Radio Int'l
Voice of America
Voice of Turkey
WWCR (Program Two) [M-F]
2110
Radio Beijing*
2125
WYFR (Network) [M-F]
2130
Christian Science Monitor [M-F]
Radio Austria Int'l
Radio Cairo
Radio Canada Int'l
Radio Moscow
WYFR (Network) [A]
2150
Radio For Peace Int'l [M-F]

2200 UTC
(5:00 PM EST, 2:00 PM PST)

All India Radio
BBC
BRT, Brussels
CBC, Northern Quebec [S-F]
Christian Science Monitor
GBC Radio 2, Accra
Radio Australia
Radio Beijing
Radio Canada Int'l
Radio Havana Cuba [M-A]

Radio Kiev
Radio Moscow
Radio New Zealand Int'l
Radio Polonia
Radio Portugal [M-F]
Radio Prague Int'l
Radio Yugoslavia
Radiotelevisione Italiana
SBC Radio 1, Singapore
SLBS, Freetown, Sierra Leone
Voice of America
Voice of Free China
WWCR (Program Two) [M-F]
2208
Voice of America (Caribbean)*
[M-F]
2209
BBC*
2210
Radio Beijing*
2225
Radio Havana Cuba* [M-A]
2230
Christian Science Monitor [M-F]
Kol Israel
Radio Havana Cuba [M-A]
Radio Moscow
Radio Tirana, Albania
Radio Vilnius
Swiss Radio Int'l
Voice of America (Special English)
WYFR (Network) [M-F]
2245
GBC Radio, Accra
Radio Sofia
Voice of Greece
2255
WYFR (Network) [M-A]

2300 UTC
(6:00 PM EST, 3:00 PM PST)

BBC
CBC, Northern Quebec [M-F]
Christian Science Monitor [M-A]
Radio Australia
Radio Belize [M-F]
Radio Canada Int'l
Radio Japan
Radio Moscow
Radio New Zealand Int'l
RTM, Malaysia
SBC Radio 1, Singapore
Voice of America
Voice of Turkey
2305
Radio Pyongyang
2315
All India Radio
2320
Radio Thailand
2330
Christian Science Monitor [M-F]
Radio Moscow
Radio New Zealand Int'l [A-H]
RTM, Malaysia*
2345
Radio For Peace Int'l [M-F]
2355
Radio Japan [M-F]

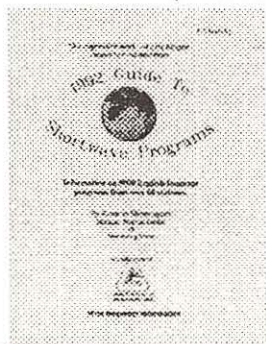
Grove Enterprises, Inc.

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Finally, an exhaustive listing of English-Language shortwave broadcast programs! Up-to-date and meticulously documented, this superb 133 page book lists some 9000 programs from more than 60 broadcasters.

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U.S. Maritime Frequency Directory

MARITIME
FREQUENCY DIRECTORY

HF - VHF - UHF

Edward Gef. Robin Lindley
Robert A. Coburn, Editor

- **Feather**

- [illegible]

VHF Frequency Allocation Charts
New 1991 MU Frequency Allocation Changes
Coast-Ship Frequency Cross Reference Charts

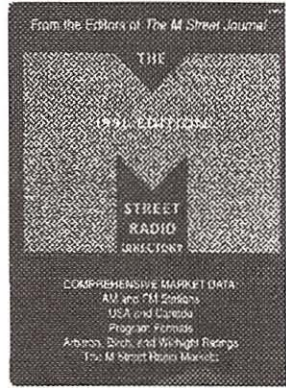
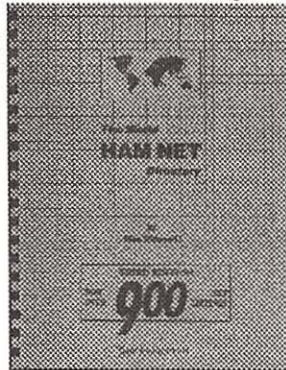
Alphabetical Listing by Community

Whether your maritime listening interests involve a scanner or shortwave receiver, this is the book for you! A massive compilation from official lists of US Coast Guard, high seas radio telephone, costal and ship stations, emergency distress, marine operator, weather service, inland waterways, and more!

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M Street Radio Directory

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Brasstown, NC 28902-0098

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0000 UTC

[7:00 PM EST/4:00 PM PST]

FREQUENCIES

0000-0100	All India Radio, Delhi	9535as	9910as	11715as	11745as	7330as	7390as	9625am	9715am
		15110as				9725am	9790as	9810as	9870as
0000-0100	Australia	11880va	11930va	13605va	15160va	12045as	12050am	12055as	15130as
		15240va	15320va	15365va	17630va	15350am	15420as	15425as	17610as
		17750va	17795va	21740va		17655au	17665am	17700am	17720am
0000-0100	Australia, ABC Brisbane	4920do	9660do			17775as	17890am	21480am	21690as
0000-0100	Australia, ABC Perth					21790au			
0000-0100	AWR Costa Rica	9725ca	11870ca			0000-0050	N. Korea, Radio Pyongyang	11335na	13760na
0000-0100 tent, vl	Baghdad, Iraq Int'l	11830am	15140am			0000-0100 smtwhf	New Zealand, RNZI	17770pa	15115na
0000-0030	BBC London	5965as	5975na	6005af	6175na	0000-0030 sm	Norway	9645am	11925am
		6195as	7145as	7325na	9580as	0000-0100	RFPI, Costa Rica	7375na	
		9590na	9915na	11750sa	11945as	0000-0100	S. Korea, Seoul	15575na	
		11955as	12095na	15260sa	15360pa	0000-0100	SBC Radio 1, Singapore	5010do	5052do
		17830as				0000-0100	SLBS, Sierra Leone	3316do	11940do
0000-0100	Brussels BRT Belgium	9925na	13710na			0000-0100	Spanish National Radio	9530na	
0000-0100	Bulgaria, Radio Sofia	9595am	9700am	11660eu	11680na	0000-0100	Thailand	4830as	9655as
		11720eu	11950na			0000-0100	VOA	6130ca	9455ca
						0000-0100	VOA	7120as	9770as
0000-0100	Canada RCI Montreal	5960am	9755am					15290as	17735as
0000-0100	CFCX Montreal, Canada	6005do				0000-0100	WHRI Noblesville, Indiana	7315am	9495am
0000-0100	CFRX Toronto, Canada	6070do				0000-0100	WINB Red Lion, Penn.	15145eu	
0000-0100	CFVP Calgary, Canada	6030do				0000-0100	WRNO New Orleans	7355am	
0000-0100	China, Radio Beijing	9770am	11715am			0000-0100	WWCR Nashville	5935na	7435na
0000-0100	CHNX Halifax, Canada	6130do				0000-0100	WYFR Okeechobee, FL	5985am	
0000-0100 s-f, vl	Croatian Radio via WHRI	7315na	9495na			0030-0100	BBC London	5965as	5975na
0000-0100	CSMonitor World Svc, Bost	7395na	9850af	13760na	17555as			7135as	7325na
0000-0100 sa	CSMonitor World Svc, Bost	17865as						9915na	11750sa
0000-0100	Cuba, RHC, Havana	11950na						15260sa	15360pa
0000-0030 stwhfa	Czechoslovakia, R. Prague	7345na	9540na	11990na		0030-0055	BRT Brussels, Belgium	9925na	13710na
0000-0100	FEBC Manila, Philippines	15450as				0030-0055	Brussels, BRT Belgium	13655na	13710na
0000-0030 tent	Kol Israel	7465am	9435am	11605am		0030-0100	HCJB Quito, Ecuador	9745am	15155am
0000-0100	KSDA, Guam	15610as				0030-0100	Netherlands	6020am	6165am
0000-0100	KTBN Salt Lake City	15590am				0030-0100	Sri Lanka B'casting Corp.	6005as	9720as
0000-0100	KVOH Los Angeles	17775am				0030-0100	VOA	5995sa	7405sa
0000-0030	Lithuania, Radio Vilnius	9870am	15180na	17605na	17690na			15120sa	15205sa
0000-0100	Malaysia, RTM Radio 4	7295do				0030-0100	VOIRI Teheran	9022na	9765na
0000-0100	Moscow World Svc	6000am	6045am	7110as	7115am	0040-0050 twlfas	Venezuela, Radio Nacional	9540om	
		7135as	7150am	7255au	7295au	0045-0100	Korea World News	7275as	

SELECTED PROGRAMS

Sundays

- 0000 KSDA, Guam: Your Story Hour. Dramatized children's stories.
- 0000 Radio Norway Int'l: Norway Today. A magazine program on issues and people affecting modern-day Norway.
- 0005 Christian Science Monitor: Herald of Christian Science. Religious programming explaining the doctrine of Christian Science.
- 0030 BBC: The Ken Bruce Show. Ken Bruce plays pop music, past and present.
- 0030 KSDA, Guam: Voice of Prophecy. H Richards' devotional program.
- 0040 Radio Netherlands: Newslines. News analysis from correspondents worldwide.
- 0054 Radio Netherlands: Van Gogh's Ear. Barry O'Dwyer presents a magazine program.

Mondays

- 0000 KSDA, Guam: Music Scrapbook. See S 2300.
- 0000 Radio Norway Int'l: Norway Today. See S 0000.
- 0005 Christian Science Monitor (Americas, Europe, Africa): The Sunday Service. See S 1605.
- 0006 Christian Science Monitor (SE Asia): News Features And Interviews. In-depth news analyses, focusing on major international events.
- 0015 KSDA, Guam: Bible in Living Sound. See S 2315.
- 0030 BBC: In Praise Of God. Christian religious services and meditations.
- 0030 KSDA, Guam: Greatest Story Ever Told. A Bible reading.
- 0030 Radio Netherlands: Happy Station. See S 1130.

- 0045 KSDA, Guam: Voice of Prophecy. See S 0030.

Tuesdays

- 0000 KSDA, Guam: Music Scrapbook. See S 2300.
- 0006 Christian Science Monitor: News Features And Interviews. See M 0006.
- 0015 KSDA, Guam: Bible in Living Sound. See S 2315.
- 0030 BBC: Panel Game. Benny Green, Kenny Baker, and the gang return with "Jazz Score" (through April 6th).
- 0030 KSDA, Guam: Greatest Story Ever Told. See M 0030.
- 0040 Radio Netherlands: Newslines. See S 0040.
- 0045 KSDA, Guam: Voice of Prophecy. See S 0030.
- 0054 Radio Netherlands: The Research File. See M 1154.

Wednesdays

- 0000 KSDA, Guam: Music Scrapbook. See S 2300.
- 0006 Christian Science Monitor: News Features And Interviews. See M 0006.
- 0015 KSDA, Guam: Bible in Living Sound. See S 2315.
- 0030 BBC: Omnibus. Topical features on almost any topic, from Dracula to drugs.
- 0030 KSDA, Guam: Greatest Story Ever Told. See M 0030.
- 0040 Radio Netherlands: Newslines. See S 0040.
- 0045 KSDA, Guam: Voice of Prophecy. See S 0030.
- 0054 Radio Netherlands: Mirror Images. See T 1154.

Thursdays

- 0000 KSDA, Guam: Music Scrapbook. See S 2300.
- 0006 Christian Science Monitor: News Features And Interviews. See M 0006.
- 0015 KSDA, Guam: Bible in Living Sound. See S 2315.

- 0030 BBC: Comedy/Drama. See W 1530.

- 0030 KSDA, Guam: Greatest Story Ever Told. See M 0030.

- 0040 Radio Netherlands: Newslines. See S 0040.

- 0045 KSDA, Guam: Voice of Prophecy. See S 0030.

- 0054 Radio Netherlands: Feature. See W 1154.

Fridays

- 0000 KSDA, Guam: Music Scrapbook. See S 2300.
- 0006 Christian Science Monitor: News Features And Interviews. See M 0006.
- 0015 KSDA, Guam: Bible in Living Sound. See S 2315.
- 0030 BBC: Music Feature. On the 200th anniversary of his birth, explore "Rossini And His World" (through April 17th).
- 0030 KSDA, Guam: Greatest Story Ever Told. See M 0030.
- 0040 Radio Netherlands: Newslines. See S 0040.
- 0045 KSDA, Guam: Voice of Prophecy. See S 0030.
- 0054 Radio Netherlands: Media Network. See H 1154.

Saturdays

- 0000 KSDA, Guam: Your Story Hour. See S 0000.
- 0005 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 0030 BBC: From The Weeklies. A review of the British weekly press.
- 0030 KSDA, Guam: Power to Cope. See S 1630.
- 0040 Radio Netherlands: Newslines. See S 0040.
- 0045 BBC: Recording Of The Week. See M 0615.
- 0054 Radio Netherlands: 1992. See F 1154.

0100 UTC

[8:00 PM EST/5:00 PM PST]

FREQUENCIES

0100-0115	All India Radio, Delhi	9535as 15110as	9910as	11715as	11745as			9665am	9715as	9725am	9745as
0100-0200 twhfa	Argentina,RAE BuenosAires	11710na						9790au	9855am	11985am	12025as
0100-0200	Argentina,RAE BuenosAires	11710am						12045as	12050am	15295am	15350am
0100-0200	Australia	11880va 15320va 17795va	11930va 15365va 21525va	15160va 17630va 21740va	15240va 17750va 21775va			15420am 17655as 17775as 21690as	15425as 17665as 17825am 21790au	15505as 17700am 17890am	17610am 17720as 21480am
0100-0200	Australia, ABC Brisbane	4920do	9660do			0100-0130	Nat'l Radio of Laos	7112as			
0100-0200	Australia, ABC Perth	9610do				0100-0125	Netherlands	6020am	6165am	11835am	
0100-0115 tent,vl	Baghdad, Iraq Int'l	11830am	15455sa			0100-0200	New Zealand, RNZI	17770pa			
0100-0200	BBC London	5965as 7135as 9915na 15260sa	5975na 7325na 11750sa 15280as	6005sa 9580as 11955as 15360pa	6175na 9590na 12095na 21715as	0100-0130 sm	Norway	9605na			
						0100-0130 twhfa	RCI Montreal	5960am	9755am		
						0100-0200 sm	RCI Montreal	9535am	11845am	11940am	13720am
0100-0200	CFCX Montreal, Canada	6005do				0100-0200	RFPI, Costa Rica	7375na	15030am	21465am	
0100-0200	CFRX Toronto, Canada	6070do				0100-0200	SBC Radio 1, Singapore	5010do	5052do	11940do	
0100-0200	CFVP Calgary, Canada	6030do				0100-0200	SLBS, Sierra Leone	3316do			
0100-0200	CHNX Halifax, Canada	6130do				0100-0200	Spanish National Radio	9530na			
0100-0200	CKZU Vancouver, Canada	6160do				0100-0200	Sri Lanka B'casting Corp.	6005as	9720as	15425as	
0100-0200	Croatian Radio via WHRI	7315na	9495eu			0100-0130	Sweden	9695na	9765as	9795as	
0100-0200	CSMonitor World Svc, Bost	7395na	9850af	13760na	17555as	0100-0200	Thailand	4830as	9655as	11905as	
0100-0200 sa	CSMonitor World Svc, Bost	17865as				0100-0200	Ukraine, Radio Kiev	17605na	17690na		
0100-0200	Cuba, RHC Havana	11950am				0100-0130	Uzbekhistan, R.Tashkent	5930as	5995as	7190as	7265as
0100-0127	Czechoslovakia, R.Prague	5930na	7345na	9540na		0100-0200	VOA	5995am	6130am	7405am	9455am
0100-0150	Deutsche Welle, Germany	6040na 9515na 9770na	6055na 9565na 11865na	6085na 9610na	6145na 9640na			9775am 7205as 17735as	11580am 9740as 21550as	15120am 11705as	15205am 15250as
0100-0200	FEBC Manila, Philippines	15450as				0100-0130	VOIRI Teheran	9022na	9765na	15260na	
0100-0200	HCJB Quito, Ecuador	9745am	15155am	21455am		0100-0200	WHRI Noblesville, Indiana	7315am	9495am		
0100-0200	Indonesia, Voice of	7125as	9675as	11752as	11785as	0100-0200 mwf	WHRI Radio Free Croatia	7315na	9495na		
0100-0120	Italy, RAI, Rome	9575am	11800am			0100-0200	WINB Red Lion, Penn.	15145na			
0100-0200	Japan NHK	11840me 17845as	15195as	17810as	17835as	0100-0200	WRNO New Orleans	7355na			
						0100-0200	WWCR Nashville	5935na	7435na		
0100-0130 tent	Kol Israel	7465am	9435am	11605am		0100-0200	WYFR Okeechobee, FL	6065am	9505am	15440am	
0100-0200	KTBN Salt Lake City	15590na				0130-0200	Austria, ORF Vienna	9870sa	9875na	13730na	
0100-0200 smtwh	Malaysia, RTM Radio 4	7295do				0130-0150 mtwhfa	Greece, Voice of	7430na	9420na	11645na	
0100-0200	Moscow World Svc	6000am 7135as 7275as	6045am 7150am 7310am	7110as 7160au 7390as	7115am 7255as 9625as	0130-0200 mwf	Kazakhstan, R. Alma Ata	5915do	6135do		
						0130-0200	UAE Radio, Dubai	11795na	13695eu	15320eu	15435eu
						0130-0200	Yugoslavia, Radio Federal	9580am			
						0145-0200	Vatican Radio	9650as	11935as		

SELECTED PROGRAMS

Sundays

0100 Radio Norway Int'l: Norway Today. See S 0000.
0101 BBC: Play Of The Week. Hour-long dramatic productions.
0105 Christian Science Monitor: Herald of Christian Science.
See S 0005.

Mondays

0100 Radio Norway Int'l: Norway Today. See S 0000.
0101 BBC: Feature/Drama. Led Zeppelin, U2, and other groups
headline "Classic Concerts" (2nd/9th/16th/23rd).
0106 Christian Science Monitor (SE Asia): General Features.
Stories on a wide variety of subjects.
0134 Christian Science Monitor (SE Asia): Letterbox. Staff
members respond to listener letters.
0145 BBC: Classical Music. This month, hear a new series of
"Mastersingers" from the past (through April 6th).
0147 Christian Science Monitor (SE Asia): Religious Article. A
reading from The Christian Science Monitor.

Tuesdays

0105 BBC: Outlook. See M 1405.
0106 Christian Science Monitor: General Features. See M 0106.
0130 BBC: Folk in Britain. Ian Anderson is the host, folk music
is the fare.
0134 Christian Science Monitor: Letterbox. See M 0134.
0145 BBC (South Asia): South Asia Survey. In-depth analysis
of political and other developments around the Indian
subcontinent.

0145 BBC: Health Matters. New medical developments and methods of keeping fit.
0147 Christian Science Monitor: Religious Article. See M 0147.
Wednesdays

0105 BBC: Outlo

0106 Christian Science Monitor: General Features. See M 0106.
0130 BBC: Talks. "It Made Our World" profiles inventions that
have shaped our civilization (through April 1st).
0134 Christian Science Monitor: Letterbox. See M 0134.
0145 BBC (South Asia): South Asia Survey. See T 0145.
0145 BBC: Country Style. David Allan profiles the country
music scene on both sides of the pond.

0147 Christian

Thursdays

0105 BBC: Outlook. See M 1405.

0106 Christian Science Monitor: General Features. See M 0106.

0130 BBC: Waveguide. See W 0415.

0134 Christian Science Monitor: Letterbox. See M 0134.

0140 BBC: Book Choice. See W 0425.

0145 BBC (South Asia): South Asia Survey. See T 0145.

0145 BBC: The Farming World. Agricultural news and technological innovations for farmers.

0147 Chr

Fridays
0105 BBC: Outlook. See M 1405.
0106 Christian Science Monitor: General Features. See M 0106.
0130 BBC: Seven Seas. Malcolm Billings presents news about

ships and the sea.

0134 Christian Science Monitor: Letterbox. See M 0134.
0145 BBC (South Asia): South Asia Survey. See T 0145.
0145 BBC: Global Concerns. An update on environmental issues.

0147 Christian Science Monitor: Religious Article. See M 0147.

Saturdays

0105 BBC: Outlook. See M 1405.
0105 Christian Science Monitor: Herald of Christian Science.
See S 0005.
0130 BBC: Short Story (except 28th: Seeing Stars). See S 0430.
0145 BBC (South Asia): South Asia Survey. See T 0145.
0145 BBC: Jazz Now And Then. George Reid presents a
weekly mix of new releases, old tracks, and interviews.

The Christian Science Monitor operates three stations. You can determine the transmitter by the target area:

WCSM — eu, af, me
WSHB — am, na
KHBI — as, au, pa

0200 UTC

[9:00 PM EST/6:00 PM PST]

FREQUENCIES

0200-0300	Australia	11880va	11930va	15160va	15240va
		15320va	15365va	17630va	17750va
		17795va	21525va	21740va	21775va
0200-0300	Australia, ABC Brisbane	4920do	9660do		
0200-0300	Australia, ABC Perth	200	6070do	9610do	
0200-0230	BBC London	5975na	6005sa	6175na	6195eu
		7135as	7325na	9580as	9590na
		9670me	9915na	11750sa	11955as
		12095va	15260sa	15280as	15360pa
		15380as	21715as		
0200-0300	CFVP Calgary, Canada	6030do			
0200-0300	CHNX Halifax, Canada	6130do			
0200-0300	CKZU Vancouver, Canada	6160do			
0200-0300	CSMonitor World Svc, Bost	9350me	9455na	9850na	13760am
		17555			
0200-0300 sa	CSMonitor World Svc, Bost	17555as	17865as		
0200-0300	Cuba, RHC Havana	11950na	13700na		
0200-0250	Deutsche Welle, Germany	6035as	7285as	9615as	9690as
		11945as	12055as		
0200-0300	Egypt, Radio Cairo	9475na	9675na		
0200-0230	FEBC Manila, Philippines	15450as			
0200-0300	HCJB Quito, Ecuador	9745na	15155na	21455sa	
0200-0300	Hungary, Radio Budapest	6110na	9835na	11910na	
0200-0230 mtwhfa	Kenya, Voice of	4935do			
0200-0230 tent	Kol Israel	7465am	9435am	11605am	
0200-0300 AS	KSDA Guam	13720as			
0200-0300	KTBN Salt Lake City	7510am			
0200-0300	Luxembourg	15350am			
0200-0300 smtwh	Malaysia, RTM Radio 4	7295do			
0200-0300	Moscow World Svc	6000am	6045am	7115am	7135as
		7150am	7160as	7240au	7255as
		7275as	7310am	7390as	9625as
		9665am	9715as	9725am	9745am
		9765am	9790me	11985am	12045me
		12050am	15295as	15350am	15420am
		15425me	17590me	17610am	17655am
		17665am	17700am	17720me	17775as
		17825am	17890am	21480am	21690as
		21790au			
0200-0300	New Zealand, RNZl	17770pa			

0200-0230 sm	Norway	9605na			
0200-0300 twthfa	RCI Montreal	9535sa	9755sa	11845sa	11940sa
		13720sa			
0200-0300	RFPI, Costa Rica	7375na	15030na	21465na	
0200-0300	Romania, R.Romania Int'l	5990am	6155am	9510am	9570am
		11830am	11940am		
0200-0300	SBC Radio 1, Singapore	5010do	5052do	11940do	
0200-0300	SLBS, Sierra Leone	3316do			
0200-0230	Sri Lanka B'casting Corp.	6005as	9720as	15425as	
0200-0230	Sweden	9695na	11705na		
0200-0230	Swiss Radio Int'l	6135am	9650am	9885am	12035am
		17730am			
0200-0300	Taiwan, V. of Free China,	5950na	9680na	9765pa	11740ca
		11860as	15345as		
0200-0300	Thailand	4830as	9655as	11905as	
0200-0230	VOA	5995am	7405am	9775am	11580am
		15120am	15205am		
0200-0300	VOA	7205as	9740as	11705as	15250as
		17735as	21550as		
0200-0300	WHRI Noblesville, Indiana	7315na	9495sa		
0200-0300	WINB Red Lion, Penn.	15145eu			
0200-0300	WRNO New Orleans	7355am			
0200-0300	WWCR Nashville	5935na			
0200-0300	WYFR Okeechobee, FL	6085am	9505am	15440am	
0230-0300	Albania, Radio Tirana	9760na	11825na		
0230-0300	BBC London	5975na	6005sa	6175na	6195eu
		7135me	7325na	9670me	9915na
		11750sa	11955me	12095va	15260sa
		15280as	15360pa	21715as	
0230-0250	Finland	9560na	11755na		
0230-0300 s	Kenya, Voice of	4935do			
0230-0245	Pakistan	9545as	15115as	17640as	17725as
		21730as			
0230-0300 twthfa	Portugal	9555sa	9600na	9705na	11840sa
0230-0300	Radio Pilipinas, Manila	17760pa	17840pa	21580pa	
0230-0300	Sri Lanka B'casting Corp.	9720as	15425as		
0230-0300	Yugoslavia, Radio Federal	9580na			
0240-0300	Zambia, Radio 2, Lusaka	6165do	7235do		
0245-0300	S. Korea, Seoul	9640am	11805am	15575am	
0245-0300	Ukraine, Radio Kiev	4825eu			
0250-3000	Vatican Radio	6095na	7305na	9605na	
0255-0300	TWR Bonaire	11930am			

SELECTED PROGRAMS

Sundays

- 0200 KSDA, Guam: AWR Magazine. Stories about science, nature, discoveries, and health matters.
- 0200 Radio Norway Int'l: Norway Today. See S 0000.
- 0205 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 0215 KSDA, Guam: DX Asiawaves. News from the world of shortwave radio.
- 0220 Radio Budapest: Talk Back. Topical analysis on specific issues relating to Hungary, from the Pope to auto racing.
- 0230 BBC: Feature. Program details not available at press time.
- 0230 KSDA, Guam: Digging Up The Past. Details unavailable at press time.
- 0235 Radio Budapest: DX News. News about shortwave radio listening.
- 0245 KSDA, Guam: Probe. A Bible study program.
- 0250 Radio Budapest: Music. Feature programs ranging from "Music And Mozart" to "Music And Eating Out!"

Mondays

- 0200 Radio Norway Int'l: Norway Today. See S 0000.
- 0205 Christian Science Monitor (Americas, Oceania): The Sunday Service. See S 1605.
- 0206 Christian Science Monitor (Africa, Middle East): News Features And Interviews. See M 0006.
- 0220 Radio Budapest: Conviction. Speakers relate their convictions, whether religious, political, or otherwise.
- 0230 BBC: Composer Of The Month. Profiles of famous composers.

- 0235 Radio Budapest: Briefing. Program details not available at press time.
- 0250 Radio Budapest: Hit List. The latest hits from the Hungarian charts.

Tuesdays

- 0206 Christian Science Monitor: News Features And Interviews. See M 0006.
- 0220 Radio Budapest: Letter From Budapest. Hungarians relate stories about their lifestyles.
- 0230 BBC: Quiz. See M 1215.
- 0235 Radio Budapest: 168 Hours. Repeats of the week's top news stories.
- 0241 Radio Portugal: Welcome To Portugal. See M 1511.
- 0250 Radio Budapest: Music. See S 0250.

Wednesdays

- 0206 Christian Science Monitor: News Features And Interviews. See M 0006.
- 0220 Radio Budapest: Feature. Programs ranging from "What You Say" to "Business Partner" and more.
- 0230 BBC: Development '92. Aid and development issues for developing nations.
- 0235 Radio Budapest: DX News. See S 0235.
- 0241 Radio Portugal: Music Time. See T 1511.
- 0250 Radio Budapest: Hit List. See M 0250.

Thursdays

- 0206 Christian Science Monitor: News Features And Interviews. See M 0006.

- 0220 Radio Budapest: Update. Current affairs, including "168 Hours," repeats of the week's top stories.
- 0230 BBC: Sports International. Live play-by-play, interviews, features, and discussions from the sports world.
- 0235 Radio Budapest: DX World. News about shortwave radio listening.
- 0241 Radio Portugal: Challenge Of '92. See W 1511.
- 0250 Radio Budapest: Conviction. See M 0220.

Fridays

- 0206 Christian Science Monitor: News Features And Interviews. See M 0006.
- 0220 Radio Budapest: Letter From Budapest. See T 0220.
- 0230 BBC: Drama. See H 1130.
- 0235 Radio Budapest: Talk Back. See S 0220.
- 0241 Radio Portugal: Portugal Past and Present. See H 1511.
- 0250 Radio Budapest: Music. See S 0250.

Saturdays

- 0200 KSDA, Guam: Digging Up The Past. See S 0230.
- 0205 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 0215 KSDA, Guam: Focus on Living. Life's problems and their solutions.
- 0220 Radio Budapest: Feature. See W 0220.
- 0230 BBC: People And Politics. The background to the British political scene.
- 0230 KSDA, Guam: Power to Cope. See S 1630.
- 0235 Radio Budapest: DX World. See H 0235.
- 0241 Radio Portugal: Feature. See F 1511.
- 0250 Radio Budapest: Hit List. See M 0250.

0300 UTC

[10:00 PM EST/7:00 PM PST]

0300-0400	Australia	11880va	11930va	15160va	15240va					15295me	15350am	15420am	15425am
		15320va	15365va	17630va	17750va					15470as	17590as	17610am	17655as
		17795va	21525va	21740va	21775va					17665am	17690am	17700am	17720as
0300-0400	Australia, ABC Brisbane	4920do	9660do							17775me	17890am	21690as	21790au
0300-0400	Australia, ABC Perth	9610do				0300-0400	New Zealand, RNZI			17770pa			
0300-0400	Bahrain Broadcasting Svc	6010me				0300-0330 sm	Norway			9645na			
0300-0330	BBC London	3255af	5075	5975na	6005af	0300-0330	Radio Pilipinas, Manila			17760pa	17840pa	21580pa	
		6005sa	6175na	6180eu	6190af	0300-0400	RFPI, Costa Rica			7375na	15030na		
		6195eu	7135me	7325na	9410eu	0300-0400	SBC Radio 1, Singapore			5010do	5052do	11940do	
		9600af	9670me	9915na	11730af	0300-0400	SLBS, Sierra Leone			3316do			
		11760me	11955me	12095eu	15070af	0300-0400	South Africa, Radio RSA			11900			
0300-0330	BBC London	6005sa	6175na	7325na	9915na	0300-0400	Sri Lanka B'casting Corp.			9720as	15425as		
		11730	11750sa	15260sa	15260sa	0300-0400	Taiwan, V. of Free China,			5950na	9680na		
0300-0400	CFCX Montreal, Canada	6005do				0300-0400	Tanzania			5985af	9685af	11765af	
0300-0400	CFRX Toronto, Canada	6070do				0300-0400	Thailand			4830as	9655as	11905as	
0300-0400	CFVP Calgary, Canada	6030do				0300-0400	TIFC Costa Rica			5055ca			
0300-0400	China, Radio Beijing	9770am	9690am	11715am		0300-0400	TWR Bonaire			9535am	11930am		
0300-0400	CHNX Halifax, Canada	6130do				0300-0345	Ukraine, Radio Kiev			4825eu			
0300-0400	CKZU Vancouver, Canada	6160do				0300-0315	Vatican Radio			6095na	7305na		
0300-0400	CSMonitor World Svc, Bost	9350me	9455na	9850na	13760am	0300-0330	VOA			5965eu	11905me	15160me	17810eu
0300-0400 sa	CSMonitor World Svc, Bost	17555as	17865as							17895me			
0300-0400	Cuba, RHC Havana	11950am	13700na			0300-0400	VOA			5135af	6035af	7265af	7405af
0300-0330	Czechoslovakia, R.Prague	5930na	7345na	9540na						9575af	11835af	11940	15115af
0300-0350	Deutsche Welle, Germany	6045na	6055na	6085na	6120na					17715af	21600af		
		9535na	9545na	9640na	9705na	0300-0400	WHRI Noblesville, Indiana			7315na			
		9770na				0300-0400	WRNO New Orleans			7355am			
0300-0330	Egypt, Radio Cairo	9475na	9675na			0300-0400	WWCR Nashville			7435na			
0300-0400	Guatemala, Radio Cultural	3300do				0300-0400	WYFR Okeechobee, FL			6065am	9505am		
0300-0400	HCJB Quito, Ecuador	9745na	15155na	21455na		0330-0400	Albania, Radio Tirana			9760na	11825na		
0300-0330	Japan NHK	15325am	17825am	21610am		0330-0400	Austria, ORF Vienna			9870ca	13730am		
0300-0400	Kenya, Voice of	4935do				0330-0400	BBC London			3255af	5975na	6005af	6180eu
0300-0400	KTBN Salt Lake City	7510am								6190af	6195eu	9410eu	9600af
0300-0400 smtwh	Malaysia, RTM Radio 4	7295do								9915na	11740af	11760me	11955me
0300-0400	Moscow World Svc	6000am	6045am	7115am	7135as					12095eu	15280as	15310as	15420af
		7150am	7160as	7240am	7255as	0330-0400	Japan NHK			17885af	21715as		
		7275as	7310am	7350as	9625as	0330-0400							

Sundays

0300 Radio Norway Int'l: Norway Today. See S 0000.
0305 Christian Science Monitor: Herald of Christian Science.
See S 0005.
0309 BBC: Words Of Faith. Speakers from various faiths
discuss scripture and their beliefs.
0315 BBC: Sports Roundup. News from the world of sports.
0330 BBC: From Our Own Correspondent. Reporters comment
on the background to the news.
0335 BBC (Africa): Postmark Africa. Answers to any question
under the sun.
0340 Radio Netherlands: Newslines. See S 0040.
0350 BBC: Write On... Listener letters, opinions, and
questions.
0354 Radio Netherlands: Rembrandt Express. See S 0054.

0300 Radio Norway Int'l: Norway Today. See S 0000.
0306 Christian Science Monitor (Africa, Middle East): General
Features. See M 0106.
0309 BBC: Words Of Faith. See S 0309.
0315 BBC: Sports Roundup. See S 0315.
0330 BBC: Anything Goes. See S 1430.
0330 Radio Netherlands: Happy Station. See S 1130.
0334 Christian Science Monitor (Africa, Middle East):
Letterbox. See M 0134.
0335 BBC (Africa): Network Africa. Hilton Fyle and the team
present information, personalities, and music.
0347 Christian Science Monitor (Africa, Middle East): Religious
Article. See M 0147.

Tuesdays

0306 Christian Science Monitor: General Features. See M 0106.
0309 BBC: Words Of Faith. See S 0309.
0315 BBC: Sports Roundup. See S 0315.
0330 BBC: John Peel. Newly released albums and singles from
the contemporary music scene.
0334 Christian Science Monitor: Letterbox. See M 0134.
0335 BBC (Africa): Network Africa. See M 0335.
0340 Radio Netherlands: Newsline. See S 0040.
0347 Christian Science Monitor: Religious Article. See M 0147.
0354 Radio Netherlands: The Research File. See M 1154.

Wednesdays

0306 Christian Science Monitor: General Features. See M 0106.
0309 BBC: Words Of Faith. See S 0309.
0315 BBC: Sports Roundup. See S 0315.
0330 BBC: Discovery. An in-depth look at scientific research.
0334 Christian Science Monitor: Letterbox. See M 0134.
0335 BBC (Africa): Network Africa. See M 0335.
0340 Radio Netherlands: Newslines. See S 0040.
0347 Christian Science Monitor: Religious Article. See M 0147.
0354 Radio Netherlands: Mirror Images. See T 1154.

Thursdays

0306 Christian Science Monitor: General Features. See M 0106.
0309 BBC: Words Of Faith. See S 0309.
0315 BBC: Sports Roundup. See 0315.
0330 BBC: Assignment. A weekly examination of topical issues, from Batman to the Amazon.
0334 Christian Science Monitor: Letterbox. See M 0134.

0335 BBC (Africa): Network Africa. See M 0335.
0340 Radio Netherlands: Newslines. See S 0040.
0347 Christian Science Monitor: Religious Article. See M 0147.
0354 Radio Netherlands: Feature. See W 1154.

Fridays

0306 Christian Science Monitor: General Features. See M 0106.
0309 BBC: Words Of Faith. See S 0309.
0315 BBC: Sports Roundup. See S 0315.
0330 BBC: Focus On Faith. Comment and discussion on major
issues in various religions.
0334 Christian Science Monitor: Letterbox. See M 0134.
0335 BBC (Africa): Network Africa. See M 0335.
0340 Radio Netherlands: Newsline. See S 0040.
0347 Christian Science Monitor: Religious Article. See M 0147.
0354 Radio Netherlands: Media Network. See H 1154.

Saturdays

0305 Christian Science Monitor: Herald of Christian Science.
See S 0005.

0309 BBC: Words Of Faith. See S 0309.

0315 BBC: Sports Roundup. See S 0315.

0330 BBC: The Vintage Chart Show. Paul Burnett with past
Top 20 pop music hits.

0335 BBC (Africa): Saturdays Only. The Saturday edition of
"Focus On Africa," with discussions on current events and
interviews.

0340 Radio Netherlands: Newslines. See S 0040.

0354 Radio Netherlands: 1992. See F 1154.

0400 UTC

[11:00 PM EST/8:00 PM PST]

FREQUENCIES

0340-0350 mtwhfa	Greece, Voice of	7430na	9420na	11645na
0340-0350 twhf	Venezuela, Radio Nacional	9540om		
0350-0400	Armenia, Radio Yerevan	7400na	15180na	17605na 17690na
0400-0500	Australia	11880va	11930va	15160va 15170va
		15240va	15320pa	15365va 17630va
		17795va	21525va	21740va 21775va
0400-0500	Australia, ABC Brisbane	4920do	9660do	
0400-0500	Australia, ABC Perth	9610do		
0400-0500	Bahrain Broadcasting Svc	6010me		
0400-0430	BBC London	3255af	3955eu	5975na 6180eu
		6190af	6195eu	7105af 7230eu
		7325na	9410eu	9600af 9610af
		9915na	11760me	15070va 15280as
		15310as	15420af	15590eu 17885af
		6005af	6175am	11750va 11955me
		12095va	21715as	
0400-0500	Bulgaria, Radio Sofia	9595af	11720na	11765af
0400-0500	CFCX Montreal, Canada	6005do		
0400-0500	CFRX Toronto, Canada	6070do		
0400-0500	CFVP Calgary, Canada	6030do		
0400-0500	China, Radio Beijing	11695am		
0400-0500	CHNX Halifax, Canada	6130do		
0400-0500	CKZU Vancouver, Canada	6160do		
0400-0500 vi	Croatian Radio via WHRI	7315na	9495eu	
0400-0500	CSMonitor World Svc, Bost	9445am	9840af	9870na 13760na
		17780as		
0400-0500 sa	CSMonitor World Svc, Bost	17555as		
0400-0500	Cuba, RHC Havana	6180am	11760am	11950na
0400-0430	Cuba, RHC Havana	13700na		
0400-0427	Czechoslovakia, R.Prague	5930na	7345na	9540na
0400-0450	Deutsche Welle, Germany	6065af	6130af	7150af 7225af
		7275af	9565af	9665af 9765af
		11765af	13770af	
0400-0430	Guatemala, Radio Cultural	3300do		
0400-0430	HCJB Quito, Ecuador	9745na	15155na	21455sa
0400-0500	Kenya, Voice of	4935do		
0400-0500	KTBN Salt Lake City	7510am		
0400-0500	KVOH Los Angeles	9785am		
0400-0500 smtwh	Malaysia, RTM Radio 4	7295do		
0400-0500	Moscow World Svc	6000am	6045am	7135as 7150am
		7160as	7240me	7270me 7310am
		7350as	9450as	9625as 9715as
		9725am	9750am	9765am 9880as
		9895as	11765me	11920me 11975am
		12010me	12035as	12050am 13670am
		13745as	15280me	15295au 15350am
		15420am	15425as	15470as 15520as

0400-0500	Moscow World Svc	17590as	17605as	17610am	17655am
		17675as	17690am	17700am	17720am
		17775as	17825am	17890am	21690as
		21790au			
0400-0450	N.Korea, Radio Pyongyang	15180as	15230as	17765as	
0400-0425	Netherlands	9590am	11720am		
0400-0500 smtwhf	New Zealand, RNZI	17770pa			
0400-0430	RCI Montreal	6150eu	9505eu	9670me	11925me
0400-0500	RFPI, Costa Rica	7375na	15030na		
0400-0430	Romania, R. Romania Int'l	5990am	6155am	9510am	9570am
		11830am	11940am		
0400-0500	SBC Radio 1, Singapore	5010do	5052do	11940do	
0400-0500	SLBS, Sierra Leone	3316do			
0400-0500	South Africa, Radio RSA	7270af	11900af	15230af	
0400-0430	Sri Lanka B'casting Corp.	9720as	15425as		
0400-0430	Swiss Radio Int'l	6135am	9885am	12035am	13635me
0400-0430	Tanzania	5985af	9685af	11765af	
0400-0430	Thailand	4830as	9655as	11905as	
0400-0500	Turkey, Voice of	9445na			
0400-0430	VOA	5995eu	6040me	6140me	7170eu
		7200eu	9715eu		
		6035af	7405af	9575af	11780af
0400-0430	VOA	11835af	15115af	17715af	21600af
0400-0500	WHRI Noblesville, Indiana	7315na	9495na		
0400-0500 mwf	WHRI Radio Free Croatia	7315na	9495na		
0400-0500 smtwhf	WMLK Bethel, Penna.	9465eu			
0400-0500	WRNO New Orleans	7355am	7355am	7395am	
0400-0500	WWCR Nashville	5935na	7435na		
0400-0500	WYFR Okeechobee, FL	6065am	9505am		
0400-0500	Zambia, Radio 2, Lusaka	6165do	7235do		
0425-0440	Italy, RAI, Rome	5990me	7275me		
0430-0500	BBC London	3255af	3955eu	5975na	6005af
		6180eu	6190af	6195eu	7230eu
		9410eu	9600af	11760me	12095va
		15070va	15280as	15310as	15400af
		15420af	15590eu	21470af	21715as
0430-0500 tent	Georgian Radio, Tbilisi	11850me			
0430-0500 mtwhf	Namibia BC Corp, Windhoek	3270af	3290af		
0430-0500	Nigeria	3326do	4770do		
0430-0500	TWR Swaziland	5055af	5965af	9655af	11750af
0430-0500	VOA	5995me	6040me	6140me	7170me
		7200me	9715me		
0430-0500	VOA	6035af	7405af	9575af	15115af
		17715af	21600af		
0430-0500 s	Zambia, Radio Zambia Int'l	9505af	11880af	17895af	
0432-0500	FEBA Seychelles	17810me			
0455-0600	Nigeria	3326do	4990do		
0455-0600	Nigeria, Voice of	7255af			

SELECTED PROGRAMS

Sundays

- 0405 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 0415 BBC: Feature. Program details not available at press time.
- 0430 BBC (Africa): African Perspective. A look at a major issue affecting Africa.
- 0430 BBC: Short Story. Half-hour dramatic selections, as written by listeners (except 1st: Seeing Stars, a monthly look at astronomy).
- 0445 BBC: Talks. Missing that prized old record? Write to Mike Read and he'll play it on the air — and "Replace A Disc" (1st, 8th).

Mondays

- 0405 Christian Science Monitor (Americas, Europe): The Sunday Service. See S 1605.
- 0406 Christian Science Monitor (Africa, Asia, Middle East): News Features And Interviews. See M 0006.
- 0415 BBC: Feature. BBC reporters across the world head off in search of a "Taxi" (2nd/9th).
- 0430 BBC: Off The Shelf. This month's serialized readings include E Forster's wonderful "A Passage To India"

(through 13th).

- 0435 BBC (Africa): Network Africa. See M 0335.
- 0445 BBC: Andy Kershaw's World Of Music. Exotic music from the world over.

Tuesdays

- 0406 Christian Science Monitor: News Features And Interviews. See M 0006.
- 0415 BBC: Health Matters. See T 0145.
- 0430 BBC: Off The Shelf. See M 0430.
- 0435 BBC (Africa): Network Africa. See M 0335.
- 0445 BBC: Talks. See M 2315.

Wednesdays

- 0406 Christian Science Monitor: News Features And Interviews. See M 0006.
- 0415 BBC: Waveguide. Tips on how to hear the BBC better.
- 0425 BBC: Book Choice. A short review of a recently released book.
- 0430 BBC: Off The Shelf. See M 0430.
- 0435 BBC (Africa): Network Africa. See M 0335.
- 0445 BBC: Country Style. See W 0145.

Thursdays

- 0406 Christian Science Monitor: News Features And Interviews. See M 0006.
- 0415 BBC: The Farming World. See H 0145.
- 0430 BBC: Off The Shelf. See M 0430.
- 0435 BBC (Africa): Network Africa. See M 0335.
- 0445 BBC: From Our Own Correspondent. See S 0330.

Fridays

- 0406 Christian Science Monitor: News Features And Interviews. See M 0006.
- 0415 BBC: Classical Music. See M 0145.
- 0430 BBC: Off The Shelf. See M 0430.
- 0435 BBC (Africa): Network Africa. See M 0335.
- 0445 BBC: Folk In Britain. See T 0130.

Saturdays

- 0405 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 0415 BBC: Good Books. See W 1445.
- 0430 BBC: Jazz Now And Then. See A 0145.
- 0435 BBC (Africa): Saturdays Only. See A 0335.
- 0445 BBC: Worldbrief. See F 2315.

0500 UTC

[12:00 AM EST/9:00 PM PST]

FREQUENCIES

0500-0600	Australia	11880va	11930va	15160va	15170va
		15240va	15320pa	15365va	17630va
		17795va	21525va	21740va	21775va
0500-0600	Australia, ABC Brisbane	4920do	9660do		
0500-0600	Australia, ABC Perth	9610do			
0500-0600	Bahrain Broadcasting Svc	6010me			
0500-0530	BBC London	3255af	3955eu	6005af	6180as
		6190af	6195eu	7230eu	9410eu
		9600af	9640na	11760me	12095va
		15070as	15310as	15400af	15420af
		15590va	17885af	21470af	21715as
		5975na	15280as		
0500-0600	Bulgaria, Radio Sofia	9595af	11720na	11765af	
0500-0530	Cameroon, CRTV Buea	3970do			
0500-0600	CFCX Montreal, Canada	6005do			
0500-0600	CFRX Toronto, Canada	6070do			
0500-0600	CFVP Calgary, Canada	6030do			
0500-0600	China, Radio Beijing	11840am			
0500-0600	CHNX Halifax, Canada	6130do			
0500-0600	CKZU Vancouver, Canada	6160do			
0500-0600	CSMonitor World Svc, Bost	9455na	9840af	9870na	13760na
		17780as			
0500-0600 sa	CSMonitor World Svc, Bost	17555as			
0500-0600	Cuba, RHC Havana	6180am	11760am		
0500-0550	Deutsche Welle, Germany	5960na	6045na	6120na	6130na
		9670na	9690na		
0500-0600 sa	Eq.Guinea, R.East Africa	9585af			
0500-0600	HCJB Quito, Ecuador	11925na			
0500-0600	Japan NHK	15195na	17765na	17810na	17825na
		17890na	21610na		
0500-0600	Kenya. Voice of	4935do			
0500-0515	Kol Israel	11588am			
0500-0600	KTBN Salt Lake City	7510am			
0500-0600	KVOH Los Angeles	9785am			
0500-0510	Lesotho, Maseru	4800do			
0500-0510 w	Malawi B'casting Corp.	3381do			
0500-0600	Malaysia, RTM Radio 4	7295do			
0500-0600	Moscow World Svc	6175eu	7130eu	7135as	7150am
		7160as	7240as	7310am	7440au
		9450as	9535eu	9625as	9750as
		9760eu	9765am	9880as	11765as
		1195eu	12035as	12055me	13670am
		13745me	15295me	15350am	15375am
		15420am	15465eu	15470as	15520eu
		15530eu	15545as	17590as	17610au
		17635au	17655as	17675as	17690au

		17700am	17775as	17825am	17890am
		21565as	21680as	21690as	21790au
		21845as			
0500-0600	Moscow World Svc(W.Coast)	12720am	9505am	9895am	12010am
		12050am	15180am	17605am	17700am
		17720am			
0500-0600 mtwhf	Namibia BC Corp, Windhoek	3270af	3290af		
0500-0600	New Zealand, RNZI	17770pa			
0500-0600	RFPI, Costa Rica	7375na	15030na		
0500-0600	SBC Radio 1, Singapore	5052do	11940do		
0500-0600	SLBS, Sierra Leone	3316do			
0500-0600	Spanish National Radio	9530na			
0500-0600	Thailand	4830as	9655as	11905as	
0500-0530	TWR Swaziland	5965af	9655af	11750af	
0500-0530	Vatican Radio	11625af	15090af	17730af	
0500-0600	VOA	5995eu	6040me	6060eu	6140me
		7170me	7200me	9670me	9700eu
		9715me	11825me	15205me	
0500-0600	VOA	6035af	7405af	9575af	15115af
		17715af			
0500-0600	WHRI Noblesville, Indiana	7315na	9495sa		
0500-0600	WINB Red Lion, Penn.	15145eu			
0500-0600	WRNO New Orleans	7355am	7395am		
0500-0600	WWCR Nashville	5935na	7435na		
0500-0600	WYFR Okeechobee, FL	5985am	9850am	11915eu	13695af
0500-0600	Zambia, Radio 2, Lusaka	6165do	7235do		
0500-0600 s	Zambia, Radio Zambia Int'l	9505af	11880af	17895af	
0510-0515 w,vl	Botswana, Gaborone	5955af	7255af		
0510-0600 vl	South Africa, Radio Oranje	9630do			
0524-0600 f	Ghana, Radio 2, Accra	3366do			
0526-0600	Ghana, Radio 1, Accra	4915do			
0530-0600	Austria, ORF Vienna	6015na	6155eu	13730eu	21490me
0530-0600	BBC London	3255af	3955eu	5975na	6005af
		6180as	6190af	6195eu	7230eu
		9410eu	9600af	9640na	11760me
		12095va	15070as	15280as	15310as
		15400af	15420af	15590va	21470af
		21715as			
0530-0600	Cameroon Radio-TV	4850do			
0530-0600	Romania, R.Romania Int'l	11830af	15380af	17720af	17745af
		17790af	21665af		
0530-0600	TWR Swaziland	5965af	11750af		
0530-0600	UAE Radio, Dubai	15435as	17830as	21700as	
0545-0600	Cameroon, Radio Buea	3970do			

SELECTED PROGRAMS

Sundays

0505 Christian Science Monitor: Herald of Christian Science.
See S 0005.

0530 BBC (Europe): Europe This Weekend. News and features, profiles, and trends for Europe.

Mondays

0506 Christian Science Monitor (Africa, Asia, Middle East):
General Features. See M 0106.

0530 BBC (Europe): Europe Today. The latest news, analysis, and comment for the new Europe.

0534 Christian Science Monitor (Africa, Asia, Middle East):
Letterbox. See M 0134.

0547 Christian Science Monitor (Africa, Asia, Middle East):
Religious Article. See M 0147.

Tuesdays

0506 Christian Science Monitor: General Features. See M 0106.

0530 BBC (Europe): Europe Today. See M 0530.

0534 Christian Science Monitor: Letterbox. See M 0134.

0547 Christian Science Monitor: Religious Article. See M 0147.

Wednesdays

0506 Christian Science Monitor: General Features. See M 0106.

0530 BBC (Europe): Europe Today. See M 0530.

0534 Christian Science Monitor: Letterbox. See M 0134.

0547 Christian Science Monitor: Religious Article. See M 0147.

Thursdays

0506 Christian Science Monitor: General Features. See M 0106.

0530 BBC (Europe): Europe Today. See M 0530.

0534 Christian Science Monitor: Letterbox. See M 0134.

0547 Christian Science Monitor: Religious Article. See M 0147.

Fridays

0506 Christian Science Monitor: General Features. See M 0106.

0530 BBC (Europe): Europe Today. See M 0530.

0534 Christian Science Monitor: Letterbox. See M 0134.

Saturdays

0505 Christian Science Monitor: Herald of Christian Science.
See S 0005.

0530 BBC (Europe): Europe Today. See M 0530.



In the new World Service series "Taxi," Gerry Ring, a London cab driver, tells of the trials, tribulations, and triumphs of plying for hire

0600 UTC

[1:00 AM EST/10:00 PM PST]

FREQUENCIES

0600-0700	Australia	11880va	11930va	15160va	15240va	0600-0700	Moscow World Svc	5905am	7270am	9505am	9795am
		15320va	15365va	17630va	17750va			9825am	9895am	12010am	12050am
		17795va	21525va	21740va	21775va	0600-0650	N. Korea, Radio Pyongyang	15180as	17720am		
0600-0700	Bahrain Broadcasting Svc	6010me				0600-0630	Nat'l Radio of Laos	7112as	15230as		
0600-0630	BBC London	3955eu	6180eu	6190af	6195eu	0600-0700 s	New Zealand ZLXA	3935do			
		7230eu	9410eu	9600af	11760me	0600-0630	New Zealand, RNZI	17770pa			
		11940af	11955as	12095eu	15070va	0600-0700	Nigeria	3326do	4990do		
		15310as	15400af	15420af	15590va	0600-0700	RFPI, Costa Rica	7375na	15030na		
		17790as	17830as	17885af	21470af	0600-0700	S. Korea, Seoul	7275om	11810na	15170na	
		5975na	7150pa	9640va	15280as	0600-0700	SBC Radio 1, Singapore	5010do	5052do	11940do	
		15360pa	21715as			0600-0700	SLBS, Sierra Leone	3316do			
0600-0615	Bulgaria, Radio Sofia	9595af	11720na	11765af		0600-0700 vi	South Africa, Radio Oranje	9630do			
0600-0625	Cameroon Radio-TV	4850do				0600-0700 sa	Thailand	4830as	9655as	11905as	
0600-0645 s	Cameroon, Radio Douala	4795do				0600-0700	TWR Swaziland	5965af	7200af	11750af	
0600-0700	CFCX Montreal, Canada	6005do				0600-0630	Vatican Radio	6245eu	7250eu		
0600-0700	CFRX Toronto, Canada	6070do				0600-0700	VOA	3980eu	5995eu	6040eu	6060me
0600-0700	CFVP Calgary, Canada	6030do						6110eu	6140eu	7170me	7325me
0600-0700	CHNX Halifax, Canada	6130do						11805me	11825me	15205me	
0600-0700	CKZU Vancouver, Canada	6160do				0600-0700	VOA	6035af	6125af	7405af	9530af
0600-0700	CSMonitor World Svc, Bost	9455na	9840eu	9870am	17555as			9575af	15115af	17715af	
		17780as				0600-0700	WHRI Noblesville, Indiana	7315eu	9495sa		
0600-0700	Cuba, RHC Havana	11760am				0600-0700 smtwhf	WMLK Bethel, Penna.	9465eu			
0600-0650	Deutsche Welle, Germany	11765af	13610af	13790af	15185af	0600-0700	WWCR Nashville	7435na	7490na		
		15435af	17875af			0600-0700	WYFR Okeechobee, FL	5985am	7355eu	9680eu	13695af
0600-0700 tent	ELBC Monrovia, Liberia	7275do				0600-0700	Zambia, Radio 2, Lusaka	6165do	7235do		
0600-0700 sa	Eq. Guinea, R. East Africa	9585af				0600-0630 s	Zambia, Radio Zambia Int'l	9505af	11880af	17895af	
0600-0700	Ghana, Radio 1, Accra	4915do				0615-0630 s	Cameroon, Radio Bertoua,	4750do			
0600-0700 f	Ghana, Radio 2, Accra	3366do				0615-0630	Korea World News	7550eu	15575me		
0600-0700	HCBJ Quito, Ecuador	11925na				0615-0700 mtwhf	RCI Montreal	6050eu	6150eu	7155eu	9740eu
0600-0625	Kenya, Voice of	4935do						9760me	11905me		
0600-0700	King of Hope, Lebanon	6280me				0625-0700	Kenya, Voice of	4935do			
0600-0700	KTBN Salt Lake City	7510na				0630-0700	Austria, ORF Vienna	6015na			
0600-0700	KVOH Los Angeles	9785na				0630-0700	BBC London	5975na	6180eu	6190af	6195eu
0600-0610 s	Malawi B'casting Corp.	3381do						7230eu	9410eu	9600af	9640pa
0600-0700 smtwha	Malaysia, RTM Radio 4	7295do						11760me	11940af	11955as	12095eu
0600-0700	Malaysia, Voice of	6175as	9750as	15295as				15070va	15310as	15400af	15420af
0600-0700	Malta, V. of the Medit.	9765eu						15590va	17830as	17885af	21470af
0600-0700	Moscow World Svc	6175am	7130as	7150am	7160as			7150pa	15280as	15360pa	17790as
		7240as	7310am	9450am	9530am	0630-0700	New Zealand, RNZI	21715as			
		9535as	9750am	9765am	11765as	0630-0700	Polish Radio Warsaw	17770pa			
		11880as	11975am	12035as	12055as	0630-0635 mtwhf	RTV Congolaise	6135eu	7270eu	7275eu	9525eu
		13670am	13745me	15280as	15295as	0630-0700	Swiss Radio Int'l	7105do	9610do		
		15350am	15375am	15420am	15465as	0630-0700	Vatican Radio	15430af	17565af	21770af	
		15470au	15520as	15530as	15545me	0630-0700 smtwhf	ZLXA New Zealand	11625af	15090af	17730af	
		15550me	15595me	17590as	17610as	0645-0700	Ghana B'casting Corp.	3935do	6130af		
		17635eu	17655me	17665am	17675am	0645-0700	Romania, R. Romania Int'l	11940au	15335au	17720au	17805au
		17690am	17700am	17775as	17825am			21665au			
		17890am	21680as	21690as	21790au						
		21845as									

SELECTED PROGRAMS

Sundays

- 0600 BBC (Africa): Postmark Africa. See S 0335.
 0605 Christian Science Monitor: Herald of Christian Science. See S 0005.
 0615 BBC: Letter From America. Alistair Cooke presents his unique reflections on the USA.
 0630 BBC: Jazz For The Asking. Digby Fairweather plays listener requests.
 0635 BBC (Africa): Postmark Africa. See S 0335.

Mondays

- 0606 Christian Science Monitor: News Features And Interviews. See M 0006.
 0615 BBC: Recording Of the Week. A personal choice from the new classical music releases.
 0630 BBC: Feature. See S 1401.
 0635 BBC (Africa): Network Africa. See M 0335.

Tuesdays

- 0606 Christian Science Monitor: News Features And Interviews. See M 0006.
 0615 BBC: The World Today. See M 1645.
 0630 BBC: Rock/Pop Music. All month, Miss P brings reggae to the Beeb in "World Rankin'."
 0635 BBC (Africa): Network Africa. See M 0335.

Wednesdays

- 0606 Christian Science Monitor: News Features And Interviews. See M 0006.
 0615 BBC: The World Today. See M 1645.
 0630 BBC: Meridian. Events in the world of the arts.
 0635 BBC (Africa): Network Africa. See M 0335.

Thursdays

- 0606 Christian Science Monitor: News Features And Interviews. See M 0006.

- 0615 BBC: The World Today. See M 1645.
 0630 BBC: Sports International. See H 0230.
 0635 BBC (Africa): Network Africa. See M 0335.

Fridays

- 0606 Christian Science Monitor: News Features And Interviews. See M 0006.
 0615 BBC: The World Today. See M 1645.
 0630 BBC: Meridian. See W 0630.
 0635 BBC (Africa): Network Africa. See M 0335.

Saturdays

- 0600 BBC (Africa): Saturdays Only. See A 0335.
 0605 Christian Science Monitor: Herald of Christian Science. See S 0005.
 0615 BBC: The World Today. See M 1645.
 0630 BBC: Meridian. See W 0630.
 0635 BBC (Africa): Spice Taxi. A look at African culture, from presidential style to cult films.

0700 UTC

2:00 AM EST/11:00 PM PST]

0700-0800	Australia	11720va	11880va	11930va	15240va
		15320va	21525va	21740va	21775va
0700-0710	Bafoussam, Cameroon	4000do			
0700-0800	Bahrain Broadcasting Svc	6010me			
0700-0730	BBC London	1780as	5975na	7150pa	9640va
		11955as	15280as	15360pa	21715as
0700-0730	BBC London	6180eu	6190af	6195eu	7230eu
		9410eu	11760me	11940af	12095eu
		15310as	15400af	15420af	15590eu
		17885af	21470af	21660af	17790as
0700-0800	CFCX Montreal, Canada	6005do			
0700-0800	CFRX Toronto, Canada	6070do			
0700-0800	CFVP Calgary, Canada	6030do			
0700-0800	CHNX Halifax, Canada	6130do			
0700-0800	CKZU Vancouver, Canada	6160do			
0700-0800	CSMonitor World Svc, Bost	9445na	9840eu	9870am	17555as
		17780as			
0700-0800	Cuba, RHC Havana	11760am			
0700-0800 tent	ELBC Monrovia, Liberia	7275do			
0700-0800 sa	Eq. Guinea, R. East Africa	9585af			
0700-0730	Georgian Radio, Tbilisi	12050me	12070au		
0700-0800	Ghana B'casting Corp.	6130af			
0700-0800	Ghana, Radio 1, Accra	4915do			
0700-0800 f	Ghana, Radio 2, Accra	3366do			
0700-0730	HCJB Quito, Ecuador	9695pa	11730pa	11835eu	15270eu
		17790eu			
0700-0800	Japan NHK	15250me	17765eu	17810as	17890as
		21525as			
0700-0800	Kenya, Voice of	4935do			
0700-0800	King of Hope, Lebanon	6280me			
0700-0800	KTBN Salt Lake City	7510na			
0700-0800	KVOH Los Angeles	9785na			
0700-0730 s	Latvia, Radio Riga	5935eu			
0700-0740	Lithuania, RadioCentras	9710eu			
0700-0710 w	Malawi B'casting Corp.	3381do	5995do		
0700-0800 smtwha	Malaysia, RTM Radio 4	7295do			
0700-0800	Malaysia, Voice of	6175as	9750as	15295as	
0700-0800	Moscow World Svc	6175am	7130as	7135as	7150am
		7310am	9450eu	9530am	9765as
		9855as	11730as	11765as	11880au
		12055me	13670am	13745as	15280me
		15375am	15420as	15455me	15470as
		15530au	15545as	15550as	15595as
		17590me	17610eu	17615as	17635eu
		17680eu	17690am	17700am	17775am
		17890am	21680as	21690as	21785au
		5905am	7175am	7260am	7270am
		9795am	9825am	17720am	7345am
0700-0750	N. Korea, Radio Pyongyang	15340as	17765as		
0700-0800	New Zealand, RNZI	17770as			
0700-0800	Nigeria	3326do	4990do		
0700-0800	RFPI, Costa Rica	7375na	15030na		
0700-0710	Romania, R. Romania Int'l	11940au	15335au	17720au	17805au
		21665au			
0700-0800	SBC Radio 1, Singapore	5010do	5052do	11940do	
0700-0800	SLBS, Sierra Leone	3316do			
0700-0800 vi	South Africa, Radio Oranje	9630do			
0700-0800	Taiwan, V. of Free China,	5950na			
0700-0800 sa	Thailand	4830as	9655as	11905as	
0700-0800	TWR Monte Carlo	9480na			
0700-0800	TWR Swaziland	7200af	11750af		
0700-0800	WHRI Noblesville, Indiana	7315eu	9495sa		
0700-0800 smtwhf	WMLK Bethel, Penna.	9465eu			
0700-0800	WWCR Nashville	7435am			
0700-0800	WYFR Okeechobee, FL	9850af	11915af	13695eu	
0700-0800	Zambia, Radio 2, Lusaka	6165do	7235do		
0700-0800 smtwhf	ZXLA New Zealand	3935do			
0705-0800 a	Cameroon, Radio Douala	4795do			
0730-0800	BBC London	6180eu	6190af	7325eu	9410eu
		9760eu	11760me	11860af	12095va
		15105af	15400af	15420af	15590va
		17885af	21470af	21660af	17790as
		7150pa	9640va	11955as	15310as
		17790as	21715as	15280as	15360pa
0730-0755	Brussels, BRT Belgium	5910au	11695eu	13675eu	
0730-0800	Czechoslovakia, R. Prague	17840pa	21705as		
0730-0745	Finland	6120eu	9560af	11755eu	
0730-0800	HCJB Quito, Ecuador	9745pa	11925pa		
0730-0745 mtwhf	Icelandic National Radio	3295om	6100om	9265om	
0730-0800	Netherlands	9630au	11895au		
0730-0800	Swiss Radio Int'l	3985eu	6165eu	9535eu	
0730-0745 mtwhfa	Vatican Radio	6245do	7250do	9645na	15210na
0740-0800	TWR Monte Carlo	9480eu			

0800 UTC

[3:00 AM EST/12:00 AM PST]

0800-0830	Australia	15160va	15240va	17630va	17750va
		21775va			
0800-0900	Australia, ABC Brisbane	9660do			
0800-0900	Australia, ABC Perth	15425va			
0800-0900	Australia, NBC Pt Moresby	4890na			
0800-0810	Bafoussam, Cameroon	4000do			
0800-0900	Bahrain Broadcasting Svc	6010me			
0800-0830	Bangladesh, V. of Islam	15195as	17815as		
0800-0830	BBC London	6180eu	6190af	7325eu	9410eu
		9760eu	11760me	11860af	12095eu
		15360pa	15400af	15420af	15590me
		17885af	21470af	21660af	17790as
		7150pa	9640pa	11950af	15105af
		15280as	17640va	21715as	
0800-0900 a	Cameroon, Radio Douala	4795do			
0800-0900	CFCX Montreal, Canada	6005do			
0800-0900	CFRX Toronto, Canada	6070do			
0800-0900	CFVP Calgary, Canada	6030do			
0800-0900	CHNX Halifax, Canada	6130do			
0800-0900	CKZU Vancouver, Canada	6160na			
0800-0900	CKZU Vancouver, Canada	6160na			
0800-0900	CSMonitor World Svc, Bost	9445am	9840eu	13625as	13710pa
		13760pa	17555as		
0800-0900 sa	Eq. Guinea, R. East Africa	9585af			
0800-0900	Ghana, Radio 1, Accra	4915do			
0800-0900 f	Ghana, Radio 2, Accra	3366do			
0800-0830	HCJB Quito, Ecuador	9695pa	9745pa	11730pa	11925pa
0800-0900	Indonesia, Voice of	7125as	9675as	11752as	11785as
0800-0900 a	IRRS Milan, Italy	7125eu			
0800-0900	Kenya, Voice of	4935do			
0800-0900	King of Hope, Lebanon	6280me			
0800-0900	KNLS Anchor Point, Alaska	6095as			
0800-0900	KTWR Guam	15200as			
0800-0810 w	Malawi B'casting Corp.	3381do			
0800-0900 smtwha	Malaysia, RTM Radio 4	7295do			
0800-0825	Malaysia, Voice of	6175as	9750as	15295as	
0800-0900	Moscow World Svc	5960eu	7130as	7160as	7310am
		9535as	9855as	11705as	11765as
		12010eu	12055me	13705me	15295me
		15375eu	15420am	15455am	15465as
		15520me	15530eu	15545me	15550me
		17590eu	17610as	17615as	17636eu
		17690am	17700am	17710as	17765am
		17810am	17825am	17890am	17775as
		21785as	21790au	21845as	17790as
		5905am	7175am	7260am	21680as
		9635am	9795am	9825am	21690as
0800-0850	N. Korea, Radio Pyongyang	9825am	9905am	7270am	7345am
0800-0825	Netherlands	15180as	15230as	9505am	9505am
0800-0900	New Zealand, RNZI	9630au	11895au		
0800-0900	Nigeria	9700pa			
0800-0900	Nigeria, Voice of	3326do	4990do		
0800-0845	Pakistan	7255af			
0800-0900	RFPI, Costa Rica	7375na	15030na		
0800-0900	S. Korea, Seoul	7550eu	13670eu		
0800-0900	SBC Radio 1, Singapore	5010do	5052do	11940do	
0800-0900	SLBS, Sierra Leone	3316do			
0800-0900 vi	South Africa, Radio Oranje	9630do			
0800-0900	TWR Monte Carlo	9480eu			
0800-0825	TWR Swaziland	7200af	11750af		
0800-0900	VOA	11735eu	15160eu	15195me	21455me
		21570me			
0800-0900	WHRI Noblesville, Indiana	7315eu	9495sa		
0800-0900 smtwhf	WMLK Bethel, Penna.	9465eu			
0800-0900	WWCR Nashville	7435am	7490na		
0800-0900	Zambia, Radio 2, Lusaka	6165do	7235do		
0800-0900 smtwhf	ZXLA New Zealand	3935do			
0827-0900	KTWR Guam	11805as			
0830-0900	Australia	9580va	15160va	17630va	17750va
		21775va			
0830-0900	Austria, ORF Vienna	6155eu	13730eu	15450au	21490as
0830-0900	AWR Italy	7230eu			
0830-0900	BBC London	6180eu	6190eu	7325eu	9410eu
		9760eu	11860af	11940af	12095eu
		15280as	15360pa	15400af	15420af
		17830as	21660af	21715as	15590me
0830-0900	BBC London	17885af			
0830-0900	HCJB Quito, Ecuador	9745pa	11925pa		
0830-0900	Netherlands	11895pa	17575as	21485as	
0830-0900	Swiss Radio International	9560as	13685as	17670as	21695as
0830-0845	Vatican Radio	6245eu	7250eu	9645eu	15210eu
0835-0850 mtwhf	TWR Swaziland	7200af	11750af		
0840-0850 mtwhfa	Greece, Voice of	15650au	17525au		

0900 UTC

[4:00 AM EST/1:00 AM PST]

0900-1000	Australia	7140va	9580va	13605va	15160va
0900-1000	Australia, NBC Pt. Moresby	15170va	21720as		
0900-1000 s	AWR Italy (via Portugal)	4890na			
0900-1000	Bahrain Broadcasting Svc	9670eu			
0900-0930	BBC London	6010me			
	1170as	5975eu	6045eu	6180u	6190af
	6195as	7325eu	9410eu	9660eu	9740as
	9760eu	11760me	11860af	11940af	12095eu
	15400af	17640va	21660af		15070va
	15190sa	15280as	15310as	15360as	15420af
	15590me	17705eu	17790af	17830as	17885af
	21660af	21715as			21470af
0900-1000 s	Bhutan Broadcasting Svc	6035do			
0900-1000	CFCX Montreal, Canada	6005do			
0900-1000	CFRX Toronto, Canada	6070do			
0900-1000	CFVP Calgary, Canada	6030do			
0900-1000	China, Radio Beijing	11755au	15440au	17710au	
0900-1000	CHNX Halifax, Canada	6130do			
0900-1000	CKZU Vancouver, Canada	6160do			
0900-1000	CSMonitor World Svc, Bost	9445am	9840eu	13710pa	13760pa
	17555as				
0900-0950	Deutsche Welle, Germany	6160as	9565af	11915as	15410af
		17780as	17820as	21465as	21600af
		21650as	21680as		
		9585af			
0900-1000 sa	Eq. Guinea, R. East Africa	9800as	11685as		
0900-1000	FEBC Manila, Philippines	15245as	17800pa		
0900-0950	Finland	4915do			
0900-0905	Ghana, Radio 1, Accra	3366do			
0900-0905 f	Ghana, Radio 2, Accra	9745va	11925ps		
0900-1000	HCJB Quito, Ecuador	7125eu			
0900-1000 a	IRRS Milan, Italy	15270au	17890au		
0900-1000 Ra	Japan NHK	11840as	21610as		
0900-1000	Japan NHK	4935do			
0900-1000	Kenya, Voice of	6280me			
0900-1000	King of Hope, Lebanon	15200as			
0900-0927	KWTR Guam	11805as			
0900-1000	KWTR Guam	6550me			
0900-0915	Lebanon, Radio Voice of	5995do			
0900-0910	Malawi B'casting Corp.	7295do			
0900-1000	Malaysia, RTM Radio 4	5960eu	7130eu	9535eu	
0900-1000	Moscow World Svc	11705me	11920eu	12010me	12055me
		13705as	15295eu	15345as	15420am
		15455as	15465am	15470as	15500as
		15550eu	15580as	15750eu	1580as
		17635eu	17655as	17665as	17610am
		17700am	17710as	17765as	17775as
		17870am	17880as	21680as	21690as
		21790au	21845as		
0900-1000	New Zealand, RNZI	9700pa			
0900-1000	Nigeria	3326do	4990do		
0900-1000	Nigeria, Voice of	7255af			
0900-0930	RFPI, Costa Rica	7375na	15030na		
0900-1000	SBC Radio 1, Singapore	5010do	5052do	11940do	
0900-1000	SLBS, Sierra Leone	3316do			
0900-1000 vi	South Africa, Radio Oranje	9630do			
0900-1000	Tanzania	5985af	9685af	11765af	
0900-1000	TWR Monte Carlo	9480eu			
0900-1000	VOA	11735eu	15160eu	21455me	21570eu
0900-1000 smtwhf	WMLK Bethel, Penna.	9465eu			
0900-1000	WWCR Nashville	7435am			
0900-1000	Zambia, Radio 2, Lusaka	6165do	7235do		
0900-0930 mtwhf	ZLXA New Zealand	3935do			
0905-1000	Cameroon Radio-TV	4850do			
0905-1000 sa	Ghana, Radio 1, Accra	4915do			
0905-1000 mtwhf	Ghana, Radio 2 School prg	7295do			
0905-1000 sa	Ghana, Radio 2, Accra	3366do			
0910-0940 smwha	Ulaanbaatar R., Mongolia	11850pa	12015pa		
0915-0930	Korea World News	9570am	13670eu		
0920-1000	BFBS British Forces	15245me	17830me	21745me	
0925-0955	Finland	15245as	17800au		
0930-1000	Afghanistan	4940as	9635as	15140as	17720as
0930-1000	BBC London	5975eu	6045eu	6180eu	6190af
	6195as	9410eu	9660eu	9740as	9760eu
	11750as	11760me	11940af	12095eu	15070va
	15400af	15420af	15575me	15590me	15310as
	15190sa	17640va	17705eu		
	Netherlands	11895pa			
0930-1000	RTV Togo	7265do			
0950-0953 a	Vladivostok, R.S. Pac. Ocean	4050do	4485do	5015do	5905do
	6035do	6175pa	7175pa	7210pa	7270pa
	7345pa	9530pa	9600pa	9635pa	9825pa
	11815pa	15535pa	15595pa	17620pa	17695pa
	17850pa				17825pa

1000 UTC

[5:00 AM EST/2:00 AM PST]

1000-1030	Afghanistan	4940as	9635as	15140as	17720as
1000-1100	All India Radio, Delhi	15050as	15335as	17387as	17865as
		21735as			
1000-1100	Australia	9580pa	15160va	21720pa	
1000-1100	Bahrain Broadcasting Svc	6010me			
1000-1030	BBC London	5975eu	6045eu	6180eu	6190af
	9410eu	9660eu	9740as	9750eu	9760eu
	11760me	11940af	12095eu	15070va	15190sa
	15400af	15420af	15575me	17640eu	17705eu
	17885af	21470af	21660af	21715as	
1000-1025 mtwhf	BRT Brussels, Belgium	9855eu	13675eu	21815af	
1000-1100	Cameroon Radio-TV	4850do			
1000-1100	CFCX Montreal, Canada	6005do			
1000-1100	CFRX Toronto, Canada	6070do			
1000-1100	CFVP Calgary, Canada	6030do			
1000-1100	China, Radio Beijing	11755au	15440au	17710au	
1000-1100	CHNX Halifax, Canada	6130do			
1000-1100	CKZU Vancouver, Canada	6160do			
1000-1100	CSMonitor World Svc, Bost	9455am	9495na	13625as	17555as
1000-1100 sa	CSMonitor World Svc, Bost	13770me			
1000-1100 sa	Eq. Guinea, R. East Africa	9585af			
1000-1100	FEBC Manila, Philippines	9800as	11665as		
1000-1100 sa	Ghana, Radio 1, Accra	4915do			
1000-1100 mtwhf	Ghana, Radio 2 School Prg	7295do			
1000-1100 sa	Ghana, Radio 2, Accra	3366do			
1000-1100	HCJB Quito, Ecuador	9745pa	11925pa		
1000-1100	Kenya, Voice of	4935do			
1000-1100	KSDA Guam	11980as			
1000-1100 mtwh	Malaysia, RTM Radio 4	7295do			
1000-1100	Moscow World Svc	6000am	7130as	7245as	9535eu
	9780eu	9855eu	11705me	11765me	11920eu
	12010me	12055me	13705as	15175am	15280as
	15345am	15350am	15435as	15455as	15465as
	15490eu	15500eu	15530as	15540as	15550as
	15595me	17565as	17570as	17605as	17610eu
	17665am	17670as	17675as	17690am	17695as
	17765as	17775as	17790as	17810am	17870as
	21680as	21690as	21725as	21785as	21800au
			21785as	21800au	21845as
1000-1025	Netherlands	11895pa			
1000-1100	New Zealand, RNZI	9700pa			
1000-1100	Nigeria	4990do	7285do		
1000-1100	Nigeria, Voice of	7255af			
1000-1100	RFPI, Costa Rica	7375na	15030na		
1000-1100	SBC Radio 1, Singapore	5010do	5052do	11940do	
1000-1100	SLBS, Sierra Leone	3316do			
1000-1100	South Africa, Radio RSA,	15250af			
1000-1100 vi	South Africa, Radio Oranje	9630do			
1000-1030	Swiss Radio International	9560as	13685as	17670as	21695as
1000-1100	Tanzania	5985af	9685af	11765af	
1000-1100	TWR Costa Rica	9725ca			
1000-1015	TWR Monte Carlo	9480eu			
1000-1030	Vietnam, Voice of	9840as	12020as	15010as	
1000-1100	VOA	5985as	11720au	15425au	
		6095am	9590am	11915am	
		11735eu	15160af	15195eu	21455eu
		21570eu			
1000-1100	WWCR Nashville	7435na			
1000-1100	WYFR Okeechobee, FL	5950am			
1000-1100	Zambia, Radio 2, Lusaka	6165do	7235do		
1030-1100	BBC London	5975eu	6045eu	6180eu	6190af
		6195as	9410eu	9660eu	9740as
		9750eu	9760eu	11750as	11760me
		11940af	12095eu	15070va	15190sa
		15310as	15400af	15420af	15575me
		17640va	17705eu	17790af	7885af
		21470af	21660af		
1030-1100	Korea, Seoul	11715na			
1030-1040 mtwhf	Malawi B'casting Corp.	5995do			
1030-1100	Sri Lanka B'casting Corp.	11835as	15120as	17850as	
1030-1100 sa	Tanzania	5985af	9685af	11765af	
1030-1100	UAE Radio, Dubai	13675eu	15320eu	15435as	21605as
1030-1100	Zambia, Radio Zambia Int'l	9505af	11880af	17895af	
1040-1050 mtwhf	Greece, Voice of	15650as	17525as		
1055-1100	TWR Bonaire	11815am	15345am		

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SCORPIO

ID(Sta):GKY6 (PORTISHEAD RADIO) Location: England
Date:02-27-91 Begin Prg:03:17:35 End Prg: Freq: 17.220.00
Mode:PSK Signal Agg/Svc:Coastal(sea) QSL:
Remarks: SITOR traffic -<arq>-
Data: 23> / > / 17.220.00 FSK / signal() 12002
[Radio] [PSE] [CLS] Terminal Mode [CHG] [CLD] [S/F] [Qu/aX]
-LogScan-----Log of John Doe-----[TJ]

CHD:AL
MODE NOW ALIST
.. THIS IS AN AUTO TELEX MESSAGE SYSTEM
TRAFFIC FOR THE FOLLOWING VESSELS:
USS FREDRICKS
HMS UINC...

GA+?

<arq FILE LOADED>

[1Manual] [2 Func1] [3 Func2] [4 Func3] [5 Upload] [6 TimeON] [7 TimeOFF] [8 Clear] [9 Log] [10 Optns]

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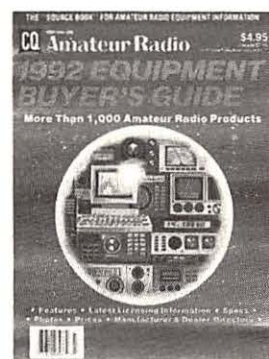
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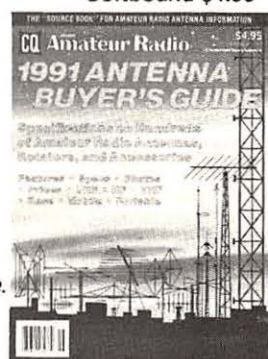


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1100 UTC

[6:00 AM EST/3:00 AM PST]

FREQUENCIES

1100-1200	Australia	6080va	7140va	7240va	9580va	17870as	17880as	21680as	21725as
		9710va	13605va	15160va	15170va	21785as	21800au		
		21720va				9525af	11818af	11835af	
1100-1200	AWR Costa Rica	9725ca				6576am	9977am	11335am	
1100-1200	Bahrain Broadcasting Svc	6010me				17902eu	21520eu		
1100-1130	BBC London	5965na	6045eu	6180eu	6190af	7375na	15030na		
		6195eu	9410eu	9515na	9660eu	5010do	5052do	11940do	
		9740as	9750eu	9760eu	11750as	9555af	11860af	11900af	
		11760me	11940af	12095eu	15070va	9630do			
		15310as	15400af	15420af	15575me	11835as	15120as	17850as	
		15220na	17640va	17705eu	17790af	13635as	15505as	17670as	21770as
		17885af	21470af	21660af		11815am	15345am		
1100-1200	CFCX Montreal, Canada	6005do				9840as	12020as	15010as	
1100-1200	CFRX Toronto, Canada	6070do				5985as	6110au	9760as	11720au
1100-1200	CFVP Calgary, Canada	6030do				15155au	15425as		
1100-1200	CHNX Halifax, Canada	6130do				6095am	9590am	11915am	
1100-1200	CSMonitor World Svc, Bost	9455am	9495na	13625as	17555as	7315na	9465na		
1100-1200 sa	CSMonitor World Svc, Bost	13770me				5935na	7435na		
1100-1150	Deutsche Welle, Germany	15410af	17765af	17800af	17860af	5950am	7355am		
		21465af	21600af			7275as	11740as		
1100-1200	Ghana, Radio 1, Accra	4915do				1115-1145			
1100-1110 mtwhf	Ghana, Radio 2 School Prg	7295do				Nepal, Kathmandu	3230as	5005as	7165as
1100-1200 sa	Ghana, Radio 2, Accra	3366do				1120-1130			
1100-1200	HCJB Quito, Ecuador	11925na				Vatican Radio	6245do	7250do	9645do 15210do
1100-1200	Japan NHK	6120na	11815sa	11840na		1125-1130 sa			
1100-1130	Kol Israel	11588eu	17545am			Botswana, Gaborone	5955af	7255af	
1100-1200	Korea World News	15575af				1130-1200			
1100-1200	KTBN Salt Lake City	7510na				Austria, ORF Vienna	6155eu	11780as	13730va 15450as
1100-1110 sa	Malawi B'casting Corp.	5995do				1130-1200			
1100-1200	Malaysia, RTM Radio 4	7295do	7160do			AWR Italy	7230eu		
1100-1200	Moscow World Svc	6000am	7130eu	7245as	9705as	1130-1200			
		9780eu	9855eu	11700as	11705me	BBC London	5965na	6045eu	6180eu 6190af
		11765me	11920me	12010me	12055as		6195eu	9410eu	9515na 9660eu
		15175am	15280as	15345am	15455as		9740as	9750eu	9760eu 11750as
		15465as	15470as	15500eu	15520eu		11760me	11940af	12095eu 15070va
		15550as	17565as	17570as	17575as		15220na	15310as	15420af 15575me
		17605am	17655as	17665am	17670as		17640va	17705eu	17790af 17885af
		17675me	17690as	17695am	17700am		21470af		
		17710au	17780au	17790as	17810am		4800do		
						1130-1140	Lesotho, Maseru		
						1130-1200	Netherlands	5955eu	9715eu 17575eu 21480eu
								21520eu	
						1130-1200	Thailand	4830as	9655as 11905as
						1130-1200	VOIRI Teheran	7215me	9575as 9695me 11790as
								11930as	
						1145-1200	Radiodiffusion du Burundi	6140af	

SELECTED PROGRAMS

Sundays

- 1105 Christian Science Monitor: Herald of Christian Science. See S 0005.
 1130 BBC: The Ken Bruce Show. See S 0030.
 1130 Radio Netherlands: Happy Station. Tom Meyer's family entertainment program with music and letters.

Mondays

- 1106 Christian Science Monitor: General Features. See M 0106.
 1130 BBC: Composer Of The Month. See M 0230.
 1134 Christian Science Monitor: Letterbox. See M 0134.
 1140 Radio Netherlands: Newslines. See S 0040.
 1147 Christian Science Monitor: Religious Article. See M 0147.
 1154 Radio Netherlands: The Research File. The latest developments in science and technology.

Tuesdays

- 1106 Christian Science Monitor: General Features. See M 0106.
 1130 BBC: Megamix. Music, sports, fashion, health, travel, news, and opinion for young people.
 1134 Christian Science Monitor: Letterbox. See M 0134.
 1140 Radio Netherlands: Newslines. See S 0040.
 1147 Christian Science Monitor: Religious Article. See M 0147.
 1154 Radio Netherlands: Mirror Images. An arts magazine, featuring film, theatre, opera, books, and music.

Wednesdays

- 1106 Christian Science Monitor: General Features. See M 0106.

- 1130 BBC: Meridian. See W 0630.
 1134 Christian Science Monitor: Letterbox. See M 0134.
 1140 Radio Netherlands: Newslines. See S 0040.
 1147 Christian Science Monitor: Religious Article. See M 0147.
 1154 Radio Netherlands: Feature. "In So Many Words" looks at the diversity of linguistic cultures in the European Community (through 25th).

Thursdays

- 1106 Christian Science Monitor: General Features. See M 0106.
 1130 BBC: Drama. Half-hour dramatic productions from the BBC's crack production team.
 1134 Christian Science Monitor: Letterbox. See M 0134.
 1140 Radio Netherlands: Newslines. See S 0040.
 1147 Christian Science Monitor: Religious Article. See M 0147.
 1154 Radio Netherlands: Media Network. Jonathan Marks surveys communications developments worldwide.

Fridays

- 1106 Christian Science Monitor: General Features. See M 0106.
 1130 BBC: Meridian. See W 0630.
 1134 Christian Science Monitor: Letterbox. See M 0134.
 1140 Radio Netherlands: Newslines. See S 0040.
 1147 Christian Science Monitor: Religious Article. See M 0147.
 1154 Radio Netherlands: 1992. Pete Myers looks at a year of change for Europe and the New World (through 29th).

Saturdays

- 1105 Christian Science Monitor: Herald of Christian Science. See S 0005.
 1130 BBC: Meridian. See W 0630.
 1140 Radio Netherlands: Asiatican. A live magazine show with interviews with newsmakers, press reviews, monthly quizzes and listener opinion.



Sheena McDonald, who chairs BBC's "It's Your World," is an experienced presenter of international affairs.

1200UTC

[7:00 AM EST/4:00 AM PST]

FREQUENCIES

1200-1300	Australia	5995va	6020pa	6080va	7240va	1200-1300	Nigeria	4990do	7285do		
		9580va	9710va	21720va		1200-1300	Nigeria, Voice of	7255af			
1200-1300	Australia, ABC Brisbane	4920au				1200-1230 as	Norway	21695as	25730as		
1200-1300	Australia, ABC Perth	9610do				1200-1255	Polish Radio Warsaw	9525eu	11815eu		
1200-1300	AWR Costa Rica	9725ca				1200-1300	RFPI, Costa Rica	15030na	21465na		
1200-1300	Bahrain Broadcasting Svc	6010me				1200-1230	Romania, R.Romania Int'l	15340as	15365as	17730as	
1200-1230	BBC London	6045eu	6180eu	6190af	6195eu	1200-1300	SBC Radio 1, Singapore	5010do	5052do	11940do	
		9410eu	9515na	9660eu	9740na	1200-1300	SLBS, Sierra Leone	3316do	5980do		
		9750eu	9760eu	11750as	11760me	1200-1230	Somalia, Radio Mogadishu,	6095af			
		11940af	12095eu	15070eu	15220na	1200-1300 vl	South Africa, Radio Oranje	9630do			
		15310as	15420af	15575me	17640va	1200-1300 sa	Tanzania	5985af	9684af	11765af	
		17705eu	17790af	17885af	21470af	1200-1230	Thailand	4830as	9655as	11905as	
		21660af				1200-1300	TWR Bonaire	11815am	15345am		
1200-1215	Cambodia, Voice of	9695as	11938as			1200-1230 smwha	Ulaanbaatar R., Mongolia	11850as	12015as		
1200-1300 mtwhf	Cameroon, Radio Douala	4795do				1200-1230	Uzbekistan, R.Tashkent	5945as	9540as	15470as	17745as
1200-1300	CFCX Montreal, Canada	6005do				1200-1230	VOA	6110as	9760au	11715as	15155au
1200-1300	CFRX Toronto, Canada	070do						15425as			
1200-1300	CFVP Calgary, Canada	6030do				1200-1230	VOIRI Teheran	7215me	9575as	9695me	11790as
1200-1300	China, Radio Beijing	9665am						11930as			
1200-1300	China, Radio Beijing	9530as	9665am	11600pa	11660as	1200-1300	WHRI Noblesville, Indiana	7315am	9465am		
		15450pa				1200-1300	WWCR Nashville	12160am	15690am		
1200-1300	China, Radio Beijing	9715as	11660as			1200-1300	WYFR Okeechobee, FL	5950am	7355am	9705am	11830am
1200-1300	CHNX Halifax, Canada	6130do						17760am			
1200-1300	CKZU Vancouver, Canada	6160do				1200-1230 s	Zambia, Radio Zambia Int'l	9505af	11880af	17895af	
1200-1300	CSMonitor World Svc, Bost	9495am	13625as	13760na	15665au	1215-1230	Cyprus, Radio Bayrak	6150va			
1200-1300 sa	Eq. Guinea, R. East Africa	9585af				1215-1300	Egypt, Radio Cairo	17595as			
1200-1300	Ghana, Radio 1, Accra	4915do				1215-1300	Korea, Seoul	9750am			
1200-1225 sa	Ghana, Radio 2, Accra	3366do				1226-1300	Ghana, Radio 2, Accra	7295do			
1200-1300	HCJB Quito, Ecuador	11925am	15115am	17890am	21455om	1230-1300	Bangladesh	15200as	15605as	15647as	17750as
1200-1300	Kenya, Voice of	4935do				1230-1300	BBC London	6045eu	6180eu	6190af	6195ca
1200-1300	KTBN Salt Lake City	7510am						9410eu	9515na	9660eu	9740na
1200-1210 w	Malawi B'casting Corp.	3381do	5995do					9750eu	9760eu	11760me	11940af
1200-1300	Malaysia, RTM Radio 4	7295do						12095eu	12170as	15070eu	15220na
1200-1300	Moscow World Svc	6000am	7130eu	7245as	9705as			15310as	15420af	15575me	17640va
		9780as	9855eu	11705me	11765as			17705eu	17790af	17885af	21470af
		11920as	12055me	15280as	15345am	1230-1255 s	BRT Brussels, Belgium	21810na			
		15350am	15435as	15465am	15480eu	1230-1300 mtwhf	Finland	15400na			
		15490eu	15500as	15535as	15550au	1230-1300	RFI Radio France Int'l	9805eu	11670eu	15195eu	15425eu
		17565as	17570as	17605as	17610am			21635na	21645na		
		17635as	17655as	17665am	17675as	1230-1300	Sri Lanka B'casting Corp.	6075as	9720as		
		17690am	17695as	17700am	17710am	1230-1300	Vietnam, Voice of	9840as	12020as	15010as	
		17780m	17790as	17810am	17840as	1230-1300	VOA	6110as	9760au	11715au	15155as
		17860as	17870as	17880as	21680as			15425as			
		21725as	21785as	21800au		1230-1300	Yugoslavia, Radio Federal	17710as	17740am	21605pa	
1200-1225	Netherlands	5955eu	9715eu	17575eu	21480eu	1235-1245	Greece, Voice of	15565na	15650na	17515na	
		21520eu									
1200-1210	New Zealand, RNZI	9700pa									

SELECTED PROGRAMS

Sundays

- 1200 Radio Norway Int'l: Norway Today. See S 0000.
 1201 BBC: Play Of The Week. See S 0101.
 1205 Christian Science Monitor: Herald of Christian Science. See S 0005.

Mondays

- 1206 Christian Science Monitor: News Features And Interviews. See M 0006.
 1215 BBC: Quiz. Decide whether contestants are telling the truth or it's all just a big "Hoax" (2nd).
 1245 BBC: Sports Roundup. See S 0315.

Tuesdays

- 1206 Christian Science Monitor: News Features And Interviews. See M 0006.
 1215 BBC: Multitrack 1: Top 20. See M 2330.
 1245 BBC: Sports Roundup. See S 0315.

Wednesdays

- 1206 Christian Science Monitor: News Features And Interviews. See M 0006.
 1215 BBC: New Ideas. See M 1615.

- 1235 BBC: Talks. See M 1635.
 1245 BBC: Sports Roundup. See S 0315.

Thursdays

- 1206 Christian Science Monitor: News Features And Interviews. See M 0006.
 1215 BBC: Multitrack 2. See W 2330.
 1245 BBC: Sports Roundup. See S 0315.

Fridays

- 1206 Christian Science Monitor: News Features And Interviews. See M 0006.
 1215 BBC: Feature. Find out about what is becoming the world's largest business in an encore of "Tourism" (6th).
 1245 BBC: Sports Roundup. See S 0315.

Saturdays

- 1200 Radio Norway Int'l: Norway Today. See S 0000.
 1205 Christian Science Monitor: Herald of Christian Science. See S 0005.
 1215 BBC: Multitrack 3. See F 2330.
 1245 BBC: Sports Roundup. See S 0315.

Moscow, Baghdad, Kuwait —

Several areas of the world are in such flux that when, where, or whether they'll be on in English is an educated guess. Let us know when and where you are hearing them (in English) and how they identify. For now, the Shortwave Guide gives you a place to start looking.

1300 UTC

[8:00 AM EST/5:00 AM PST]

FREQUENCIES

1300-1400	Australia	5995va	6080va	7240va	9580va	1300-1400	Nigeria, Voice of	7255af			
		9710va	11800as			1300-1330 as	Norway	9590eu	25730eu		
1300-1400	Australia, ABC Brisbane	4920do				1300-1400 mtwhf	RCI Montreal	9635am	11855am	17820am	
1300-1400	Australia, ABC Perth	9610do				1300-1400	RFPI, Costa Rica	15030na	21465na		
1300-1400	Bahrain Broadcasting Svc	6010me				1300-1400	Romania, R. Romania Int'l	11940eu	15365eu	17720eu	21665eu
1300-1330	BBC London	5975eu	6045eu	6180eu	6190af	1300-1400	SBC Radio 1, Singapore	5010do	5052do	11940do	
		6195ca	9410eu	9515na	9660eu	1300-1400	SLBS, Sierra Leone	3316do	5980do		
		9740as	9750eu	9760eu	11750as	1300-1400 vl	South Africa, Radio Oranje	9630do			
		11760me	11820as	11940af	12095eu	1300-1400	Sri Lanka B'casting Corp.	6075as	9720as		
		15070va	15310as	15420af	15575me	1300-1330	Swiss Radio Int'l	6165eu	9535eu	12030eu	
1300-1330	BBC London	7180as	15220na	17640va	17705eu	1300-1400 sa	Tanzania	5985af	9684af	11765af	
		17790af	17885af	21470af	21660af	1300-1330	TWR Bonaire	11815am	15345am		
						1300-1330	VOA	6110as	9760au	11715as	15155au
								15425au			
1300-1330 mtwhf	Cameroon, Radio Douala	4795do				1300-1400	WHRI Noblesville, Indiana	9465	11790		
1300-1400	CFCX Montreal, Canada	6005do				1300-1400	WWCR Nashville	12160na	15690		
1300-1400	CFRX Toronto, Canada	6070do				1300-1400	WYFR Okeechobee, FL	5960na	9705am	11830am	13695na
1300-1400	CFVP Calgary, Canada	6030do						17760am			
1300-1400	China, Radio Beijing	9715as	11600pa			1315-1330	Lebanon, Radio Voice of	6549.5			
1300-1400	CHNX Halifax, Canada	6130do				1320-1400	Jordan	9560eu			
1300-1400	CKZU Vancouver, Canada	6160do				1325-1400 mtwhf	Kenya, Voice of	4935do			
1300-1400	CSMonitor World Svc, Bost	9495am	13625as	13760na	15665au	1330-1400	All India Radio, Delhi	9565as	11760as	15335as	
1300-1330	Egypt, Radio Cairo	17595as				1330-1400	Austria, ORF Vienna	11780as	15450as		
1300-1400 sa	Eq Guinea, R East Africa	9585af				1330-1400	BBC London	5975eu	6045eu	6180eu	6190af
1300-1400	FEBC Manila, Philippines	11685pa						6195ca	9410eu	9515na	9660eu
1300-1400	FEBC Manila, Philippines	11995as						9740as	9750eu	9760eu	11750as
1300-1400	Ghana, Radio 1, Accra	4915do						11820as	11940af	12095eu	15070va
1300-1400	Ghana, Radio 2, Accra	7295do						15220na	15310as	15420af	15575me
1300-1400	HCJB Quito, Ecuador	11925am	15115am	17890am	1455am	1330-1400	BBC London	7180as	17640va	17705eu	17790af
1300-1325	Kenya, Voice of	4935do						17885af	21470af	21660af	
1300-1400	KNLS Anchor Point, Alaska	7355as				1330-1400	Cameroon, Radio Douala	4795do			
1300-1315	Korea, Seoul	9750na				1330-1350 mtwhf	Finland	15400na	21550na		
1300-1400	KTBN Salt Lake City	7510				1330-1400 a	Indonesia, Radio Republik	3385do	6070do		
1300-1400	Malaysia, RTM Radio 4	7295do				1330-1345	Korea World News	7275as	11740as		
1300-1400	Moscow World Svc	4810do	5940eu	5950eu	5960eu	1330-1400	Nat'l Radio of Laos	7112as			
		7130eu	7160eu	7245as	7260as	1330-1357	RCI Montreal	6095as	6150as	9535as	9700as
		7380as	9560as	9705as	9780eu	1330-1400	Sweden	17740as	21570as		
		9855eu	9885eu	9895as	11705me	1330-1400	Swiss Radio Int'l	7480as	11690as	13635as	15505as
		11765me	11840am	11920as	12025me			17830as	21695as		
		13705me	15280me	15345am	15480as	1330-1400	Turkey, Voice of	9675eu			
		15535as	17570me	17605me	17635as	1330-1400	UAE Radio, Dubai	13675eu	15320eu	15435as	21605as
		17655me	17665as	17690am	17700am	1330-1400	Uzbekistan, R. Tashkent	5945as	9540as	15470as	17745as
		17780me	17790as	17810am	17840as	1330-1400	Vietnam, Voice of	9840as	12020as	15010as	
		17860as	17870as	21680as	21725as	1330-1400 VOA	VOA	6110as	9760as	15155au	15425au
1300-1350	N. Korea, Radio Pyongyang	9345eu	9640eu	13650as	15230as	1345-1400	Vatican Radio	15090au	17525au	21515au	
1300-1400	Nigeria	4990do	7285do								

SELECTED PROGRAMS

Sundays

1300 Radio Norway Int'l: Norway Today. See S 0000.

1305 Christian Science Monitor: Herald. See S 0005.

Mondays

1306 Christian Science Monitor: General Features. See M 0106.

1334 Christian Science Monitor: Letterbox. See M 0134.

1347 Christian Science Monitor: Religious Article. See M 0147.

Tuesdays

1306 Christian Science Monitor: General Features. See M 0106.

1334 Christian Science Monitor: Letterbox. See M 0134.

1347 Christian Science Monitor: Religious Article. See M 0147.

Wednesdays

1306 Christian Science Monitor: General Features. See M 0106.

1334 Christian Science Monitor: Letterbox. See M 0134.

1347 Christian Science Monitor: Religious Article. See M 0147.

Thursdays

1306 Christian Science Monitor: General Features. See M 0106.

1334 Christian Science Monitor: Letterbox. See M 0134.

1347 Christian Science Monitor: Religious Article. See M 0147.

Fridays

1306 Christian Science Monitor: General Features. See M 0106.

1334 Christian Science Monitor: Letterbox. See M 0134.

1347 Christian Science Monitor: Religious Article. See M 0147.

Saturdays

1300 Radio Norway Int'l: Norway Today. See S 0000.

1305 Christian Science Monitor: Herald. See S 0005.

Notes from the
Frequency Manager

• You may notice that our frequency list has some changes this month. For one thing, the repetitious listing of station names starting with the word "Radio" or "Voice" has been reorganized to list the name of the country first. Radio Moscow thusly just becomes Moscow. Try it out and see how you like it.

Also, your frequency manager has finally learned to fully utilize the clever program developed for us by Bob Cheek, so you may notice some nice changes here or there. Many thanks to our editor, Rachel Baughn, for undertaking a major

rethinking of the entire section this past month.

• Libya's Radio Jamahariya disappeared quite some time ago. Uncle Daffy was trying to fit into the World Community. But now things aren't looking so sociable for the former (?) line crosser, so it may be a good time to watch out for the return of this interesting station. Try out 11815, 7215, and 15450, as well as all points in between. If you manage to hear it, call Monitoring Central. Greg Jordan's number is published, at least for now, in Winston-Salem, NC.

1400 UTC

[9:00 AM EST/6:00 AM PST]

FREQUENCIES

1400-1500	All India Radio, Delhi	9565as	11760as	15335as	12025me	13705me	15280me	15345am
1400-1500	Australia	5995va	6080va	7240va	15480as	15535as	17570me	17605me
		9710va	9770va	11800va	17635as	17655me	17665as	17690am
		13755va		12000va	17700am	17780me	17790as	17810am
1400-1500	Australia, VLV6 Wanneroo,	6140do			17840as	17860as	17870as	21680as
1400-1500	Bahrain Broadcasting Svc	6010me			17670	21725as	21785as	21800au
1400-1430	BBC London	5975eu	6045eu	6180eu	4990do	7285do		
		6195as	7180as	9410eu	1400-1500	Nigeria, Voice of	7255af	
		9740as	9750eu	9760eu	1400-1500 s	RCI Montreal	11955am	
		11820as	11940af	12095eu	1400-1500	RFI Radio France Int'l	11910as	17650as
		15310as	15575me	17640va	1400-1500	RFPI, Costa Rica	15030am	21770as
		17790af	17840	17880af	1400-1500	SBC Radio 1, Singapore	5010do	5052do
		21660af		21470af	1400-1500	SLBS, Sierra Leone	3316do	5980do
1400-1425	BRT Brussels, Belgium	21810na			1400-1500 vl	South Africa, Radio Oranje	9630do	
1400-1500	Cameroon Radio-TV	4850na			1400-1500	Sri Lanka B'casting Corp.	6075as	9720as
1400-1430	Cameroon, Radio Douala	4795do			1400-1410	Sudan, Radio Juba	9540do	9550do
1400-1500	CFCX Montreal, Canada	6005do			1400-1500 sa	Tanzania	5985af	9684af
1400-1500	CFRX Toronto, Canada	6070do			1400-1415	Vatican Radio	15090au	17525au
1400-1500	CFVP Calgary, Canada	6030do			1400-1500	VOA	6110as	9760as
1400-1500	China, Radio Beijing	11815na	11855as	15165as	1400-1500	VOA	6110as	7125as
1400-1500	CHNX Halifax, Canada	6130do					15395as	
1400-1500	CKZU Vancouver, Canada	6160do			1400-1500	VOA	15205me	
1400-1500	CSMonitor World Svc, Bost	9530as	13625as	13760am	1400-1500	WHRI Noblesville, Indiana	9465na	15105na
1400-1500 sa	CSMonitor World Svc, Bost	15665na		21670eu	1400-1500	WRNO New Orleans	15420na	
1400-1500	FEBC Manila, Philippines	11995as			1400-1500	WWCR Nashville	12160na	15690am
1400-1430 as	Finland	15400na	21550na		1400-1500	WYFR Okeechobee, FL	9705am	11550as
1400-1500	Ghana, Radio 1, Accra	4915do			1415-1500	Bhutan Broadcasting Svc	5023do	
1400-1500	Ghana, Radio 2, Accra	7295do			1415-1425	Nepal, Kathmandu	3230do	5005do
1400-1500	HCJB Quito, Ecuador	11925na	15115na	17890na	1430-1500	BBC London	5975eu	6045eu
1400-1500 a	IRRS Milan, Italy	7125eu		21455na			6195as	9410eu
1400-1500	Japan NHK	9505am					9760eu	11750as
1400-1500	Jordan	9560eu					12095eu	15070va
1400-1500 mtwhf	Kenya, Voice of	4935do					17640va	17705eu
1400-1500	King of Hope, Lebanon	6280me			1430-1500	BBC London	7180as	21470af
1400-1500	Korea, Seoul	9570as			1430-1500 mtwhfa	Cameroon, Radio Douala	4795do	21660af
1400-1500	KTCN Salt Lake City	7510na			1430-1455	Finland	15400am	21550am
1400-1410	Malawi B'casting Corp.	3381do			1430-1500	Kol Israel	11587am	11605na
1400-1430	Malaysia, RTM Kuching	4950do					17590eu	
1400-1500	Malaysia, RTM Radio 4	7295do			1430-1500	Myanmar, Voice of, Burma	5990do	
1400-1500	Moscow World Svc	4810do	5940eu	5950eu	1430-1500	Netherlands	5955eu	13770eu
		7130eu	7160eu	7245as			17605eu	15150eu
		7380as	9560as	9705as			6095eu	6135eu
		9780eu	9855eu	9885eu	1440-1450 mtwhfa	Venezuela, Radio Nacional	9540om	7285eu
		11705me	11765me	11840am	1445-1500 smwha	Ulaanbaatar R., Mongolia	7260as	9525eu
				11920as			13780as	

SELECTED PROGRAMS

Sundays

- 1401 BBC: Feature. Eastern European leaders feature on the phone-in "It's Your World" — just dial London 71-379-7444 (through 29th).
- 1405 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 1430 BBC: Anything Goes. Bob Holness presents a variety of music and other recordings.
- 1430 Radio Netherlands: Happy Station. See S 1130.

Mondays

- 1400 BBC (East Asia): Dateline East Asia. The political and economic affairs of the Pacific rim.
- 1405 BBC: Outlook. Conversation, controversy, and color from the UK and the world.
- 1406 Christian Science Monitor: News Features And Interviews. See M 0006.
- 1430 BBC: Off The Shelf. See M 0430.
- 1440 Radio Netherlands: Newline. See S 0040.
- 1445 BBC: Talks. See S 0445.
- 1454 Radio Netherlands: The Research File. See M 1154.

Tuesdays

- 1400 BBC (East Asia): Dateline East Asia. See M 1400.

- 1405 BBC: Outlook. See M 1405.
- 1406 Christian Science Monitor: News Features And Interviews. See M 0006.
- 1430 BBC: Off The Shelf. See M 0430.
- 1440 Radio Netherlands: Newline. See S 0040.
- 1445 BBC: Classical Music. See M 0145.
- 1454 Radio Netherlands: Mirror Images. See T 1154.

Wednesdays

- 1400 BBC (East Asia): Dateline East Asia. See M 1400.
- 1405 BBC: Outlook. See M 1405.
- 1406 Christian Science Monitor: News Features And Interviews. See M 0006.
- 1430 BBC: Off The Shelf. See M 0430.
- 1440 Radio Netherlands: Newline. See S 0040.
- 1445 BBC: Good Books. Recommendations of books to read.
- 1454 Radio Netherlands: Feature. See W 1154.

Thursdays

- 1400 BBC (East Asia): Dateline East Asia. See M 1400.
- 1405 BBC: Outlook. See M 1405.
- 1406 Christian Science Monitor: News Features And Interviews. See M 0006.
- 1430 BBC: Off The Shelf. See M 0430.

- 1440 Radio Netherlands: Newline. See S 0040.
- 1445 BBC: Recording Of The Week. See M 0545.
- 1454 Radio Netherlands: Media Network. See H 1154.

Fridays

- 1400 BBC (East Asia): Dateline East Asia. See M 1400.
- 1405 BBC: Outlook. See M 1405.
- 1406 Christian Science Monitor: News Features And Interviews. See M 0006.
- 1430 BBC: Off The Shelf. See M 0430.
- 1440 Radio Netherlands: Newline. See S 0040.
- 1445 BBC: Global Concerns. See F 0145.
- 1454 Radio Netherlands: 1992. See F 1154.

Saturdays

- 1401 BBC: John Peel. See T 0330.
- 1405 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 1430 BBC: Sportsworld. Shortwave's "Wide World Of Sports," with the latest soccer, cricket, tennis, golf, and more.
- 1440 Radio Netherlands: Asiascan. See A 1140.

1500 UTC

[10:00 AM EST/7:00 AM PST]

FREQUENCIES

1500-1600	Australia	5995va	6080va	7240va	9580va					15465as	15480as	15520as	15535as
		9710va	9770va	9860va	11800va					17605as	17610am	17655am	17665am
		12000va	13755va							17670as	17690as	17790as	17810am
		17870as	21615au										
1500-1600	Bahrain Broadcasting Svc	6010me				1500-1600	Myanmar, Voice of, Burma	5990do					
1500-1600	Bangladesh	4880do				1500-1550	N. Korea, Radio Pyongyang	9325va	9640va	9977va	11705va		
1500-1530	BBC London	3915as	5975eu	6045eu	6180eu	1500-1525	Netherlands	5955eu	13770eu	15150eu	17575ee		
		6190af	6195eu	6195as	9410eu			17605eu					
		9515na	9740na	9750eu	9760eu	1500-1600	Nigeria	4990do	7285do				
		11750as	11775na	11940af	12095eu	1500-1600	Nigeria, Voice of	7255af					
		15070va	15310as	15400af	15420af	1500-1530 as	Norway	11870na					
		7180as	15260na	15575me	17640va	1500-1530 mtwhf	Portugal	21515me					
		17705eu	17790af	17840af	17860af	1500-1530	RCI Montreal	9555eu	11915eu	11935eu	13650eu		
		17880af	21470af	21490af	21660af			15315eu	15325eu	17820eu	21545eu		
1500-1530	BBC London	4850do				1500-1600 s	RCI Montreal	11955am					
		6005do				1500-1600	RFPI, Costa Rica	15030am	21465am				
		6070do				1500-1530	Romania, R. Romania Int'l	11775as	11940as	15250as	15335as		
		6030do						17720as	17745as				
		11815as	15165as			1500-1600	SBC Radio 1, Singapore	5010do	5052do	11940do			
		6130do				1500-1600	SLBS, Sierra Leone	3316do	5980do				
		6160do				1500-1600	South Africa, Radio RSA	7230af	11880af				
		9530as	13625as	13760am	21670eu	1500-1600 vl	South Africa, Radio Oranje	9630do					
		15665na				1500-1600	Sri Lanka B'casting Corp.	6075as	9720as				
		9735af	11965af	13610af	15145af	1500-1530	Sudan, Nat'l Unity Radio	9535na					
		17735af	17765af			1500-1530 sa	Tanzania	5985af	9684af	11765af			
		7165af				1500-1515 smwha	Ulaanbaatar R., Mongolia	7260as	13780as				
		11865af				1500-1600	VOA	6110as	7125as	9645as	9760as		
		9810as	15330af					15395as					
		11995as				1500-1600	VOA	9700eu	15205me				
		4915do				1500-1600	WHRI Noblesville, Indiana	15105na	21840sa				
		7295do				1500-1600	WRNO New Orleans	15420na					
		11925na	15115na	17890na	21455na	1500-1600	WWCR Nashville	12160na	15690am	17525am			
		7125eu				1500-1600	WYFR Okeechobee, FL	11830am	15215am	17760am			
		9505am				1505-1530	Finland	6120eu	9730af	11755eu	15440me		
		9560eu						21550eu					
		4935do				1522-1535	Taiwan, Voice of	9910as					
		9615as				1530-1600	Albania, Radio Tirana	9730af	11835af				
		7510na				1530-1600	Austria, ORF Vienna	6155eu	11780as	13730eu	21490va		
		11650as				1530-1600	BBC London	6190af	6195eu	6195as	7180as		
		7295do						9410eu	9740na	9750eu	11750as		
		4810do	5905eu	5960eu	6055eu			11775na	11940af	12095eu	15070va		
		7135eu	7170as	7195as	7245as			15260as	15310as	15400af	17640va		
		7260as	7315as	7330eu	7345as	1530-1540 mtwhfa	Greece, Voice of	17705eu	17880af	21470af	21660af		
		7380as	7420as	9675eu	9705eu	1530-1600	Sudan Nat'l B'casting Cor	11645eu	15550na	17535na			
		9725eu	9735as	9755eu	9760as	1530-1600	Sweden	9540do	9550do	11635do			
		9795as	9855as	9895eu	11655as	1530-1600	Swiss Radio Int'l	17870na	21500na				
		11705me	11765me	11780as	11830as	1530-1600	Tanzania	13685af	15430af	17830af	21630af		
		11840am	12025me	12035me	13705as	1530-1600	Zambia, Radio Zambia Int'l	5985af	9684af	11765af			
		15345as	15395am	15420am	15450as	1545-1600	Korea World News	9505af	11880af	17895af			
							Vatican Radio	7275va					
								15090au	17865au				

SELECTED PROGRAMS

Sundays

- 1500 BBC (Africa): Postmark Africa. See S 0335.
 1500 Radio Norway Int'l: Norway Today. See S 0000.
 1505 Christian Science Monitor: Herald of Christian Science. See S 0005.
 1515 BBC: Concert Hall. Classical music from the world's great concert halls (except 1st, 8th: International Recital, live classical music concerts from the BBC Concert Hall).

Mondays

- 1506 Christian Science Monitor: General Features. See M 0106.
 1511 Radio Portugal: Welcome To Portugal. A close look at the nation of Portugal.
 1515 BBC (Africa): Focus On Africa. African politics, sports, economics, medicine, and media.
 1515 BBC: Feature/Drama. See M 0101.
 1534 Christian Science Monitor: Letterbox. See M 0134.
 1547 Christian Science Monitor: Religious Article. See M 0147.

Tuesdays

- 1506 Christian Science Monitor: General Features. See M 0106.

- 1511 Radio Portugal: Music Time. Portuguese folk, classical, and modern rock music.
 1515 BBC (Africa): Focus On Africa. See M 1515.
 1515 BBC: A Jolly Good Show. Dave Lee Travis presents listener rock music requests.
 1534 Christian Science Monitor: Letterbox. See M 0134.
 1547 Christian Science Monitor: Religious Article. See M 0147.
Wednesdays
 1506 Christian Science Monitor: General Features. See M 0106.
 1511 Radio Portugal: Challenge Of '92. A look at the problems facing the EEC as it approaches unification in 1992.
 1515 BBC (Africa): Focus On Africa. See M 1515.
 1515 BBC: Talks. See M 2315.
 1530 BBC: Comedy/Drama. "Frank Muir Goes Into..." more subjects for comedy and philosophy (through April 22nd).
 1534 Christian Science Monitor: Letterbox. See M 0134.
 1547 Christian Science Monitor: Religious Article. See M 0147.
Thursdays
 1506 Christian Science Monitor: General Features. See M 0106.

- 1511 Radio Portugal: Portugal Past and Present. A look at historical events and current issues facing Portugal.
 1515 BBC (Africa): Focus On Africa. See M 1515.
 1515 BBC: Music With Matthew. See S 2315.
 1534 Christian Science Monitor: Letterbox. See M 0134.
 1547 Christian Science Monitor: Religious Article. See M 0147.
Fridays
 1506 Christian Science Monitor: General Features. See M 0106.
 1511 Radio Portugal: Feature. A program featuring listener letters, shortwave listening, or stamp collecting.
 1515 BBC (Africa): Focus On Africa. See M 1515.
 1515 BBC: Music Review. See S 2315.
 1534 Christian Science Monitor: Letterbox. See M 0134.
 1547 Christian Science Monitor: Religious Article. See M 0147.
Saturdays
 1500 BBC (Africa): Spice Taxi. See A 0635.
 1500 Radio Norway Int'l: Norway Today. See S 0000.
 1505 Christian Science Monitor: Herald of Christian Science. See S 0005.
 1515 BBC: Sportsworld. See A 1430.

1600 UTC

[11:00 AM EST/8:00 AM PST]

FREQUENCIES

1600-1700	Australia	5995va 9580va 13605va 13755va	6060va 9860va 11910va 12000va	6080va 11910va 12000va	7240va 12000va
1600-1700	Bahrain Broadcasting Svc	6010me			
1600-1630	BBC London	1540af 6195eu 9750eu 12095eu 17695eu	3915as 9410eu 11750as 15070eu 17705eu	5975as 9630af 11775na 15400af 17860af	6190af 9740me 11940af 17640va 17880af
1600-1630	BBC London	7180as 21660af 6005do 6070do 6030do	15260na 15310as 21470af		
1600-1700	CFCX Montreal, Canada	6005do			
1600-1700	CFRX Toronto, Canada	6070do			
1600-1700	CFVP Calgary, Canada	6030do			
1600-1700	China, Radio Beijing	11575af	15130af	15170af	
1600-1700	CHNX Halifax, Canada	6130do			
1600-1700	CKZU Vancouver, Canada	6160do			
1600-1700	CSMonitor World Svc, Bost	11580as	13625as	21640af	
1600-1700 sa	CSMonitor World Svc, Bost	15665na	17555am		
1600-1650	Deutsche Welle, Germany	6170as 11785as	7225as 15105as	7305as 15415as	9615as 15595
1600-1615 a	FEBA Seychelles	11865as			
1600-1700	Ghana, Radio 1, Accra	4915do			
1600-1700	Ghana, Radio 2, Accra	7295do			
1600-1630 a	IRRS Milan, Italy	7125eu			
1600-1700 mtwhf	Kenya, Voice of	4935do			
1600-1700	Korea, Seoul	5975om	9870af		
1600-1700	KSDA Guam	13720as			
1600-1700	KTBN Salt Lake City	15590am			
1600-1635	KWTR Guam	11650as			
1600-1610	Lesotho, Maseru	4800do			
1600-1610	Malawi B'casting Corp.	3381do			
1600-1700	Moscow World Svc	6055eu 7290eu 9575eu 9885as 11840am 15420am 15450as 15485as 17670as 17810am	7170eu 7315eu 9725eu 9895eu 12035me 15450as 15465as 17605as 17690am 17870as	7220eu 7345eu 9755as 11705me 13705as 15465as 15480as 17610am 17775as 21615as	7260eu 7390eu 9795as 11725am 15395as 15480as 17655as 17780as 21785au
1600-1700	Nigeria	4990do			
1600-1700	Nigeria, Voice of	7255af			
1600-1630 as	Norway	15230me	21730me		
1600-1630	Pakistan	11570me	13665me	15560me	17555af
1600-1655	Polish Radio Warsaw				
1600-1700 s	RCI Montreal				
1600-1700	RFI Radio France Int'l				
1600-1700	RFPI, Costa Rica				
1600-1700	Saudi Arabia BC Svc				
1600-1605	SBC Radio 1, Singapore				
1600-1700	SLBS, Sierra Leone				
1600-1700	Somali People, Voice of				
1600-1700	South Africa, Radio RSA,				
1600-1640 vl	South Africa, Radio Oranje				
1600-1700	Sri Lanka B'casting Corp.				
1600-1700	Tanzania				
1600-1700	TWR Swaziland				
1600-1615	UAE Radio, Dubai				
1600-1615	Vatican Radio				
1600-1630	Vietnam, Voice of				
1600-1630	VOA				
1600-1700	VOA				
1600-1700	WHRI Noblesville, Indiana				
1600-1700	WRNO New Orleans				
1600-1700	WWCR Nashville				
1600-1700	WYFR Okeechobee, FL				
1600-1630	Yemen				
1600-1700	Zambia, Radio Zambia Int'l				
1610-1615 mtwhf	Botswana, Gaborone				
1615-1700	Swiss Radio Int'l				
1630-1700	BBC London				
1630-1700	BBC London				
1630-1700	Egypt, Radio Cairo				
1630-1700	HCJB Quito, Ecuador				
1630-1700 mtwhfa	Netherlands				
1630-1657	RCI Montreal				
1630-1700 mtwhf	RTV Morocco				
1630-1700	RTV Rwandaise				
1630-1700	VOA				
17725af					
21480me					
9525eu					
11955am					
6175eu					
11705af					
12015af					
15530me					
17620af					
17795af					
17850af					
15030na					
21465na					
9705eu					
9720eu					
5010do					
5052do					
11940do					
3316do					
5980do					
6320do					
15160af					
9630do					
6075as					
9720as					
5985af					
9684af					
11765af					
9600af					
11795af					
13675eu					
15320eu					
21605eu					
15090au					
17865au					
9840eu					
12020eu					
15010eu					
9700eu					
15205me					
6110as					
7125as					
9645as					
9760as					
15395as					
9575af					
11920af					
15410af					
15580af					
17800af					
21625af					
15105am					
17830am					
17830am					
21840am					
15420					
15690am					
17535am					
11830am					
15215am					
15355am					
17760am					
21525eu					
21615af					
5970as					
7190as					
9505af					
11880af					
17895af					
5955af					
7255af					
9885eu					
3915as					
5975as					
6190af					
6196eu					
9410eu					
9630af					
9740me					
11750as					
11775na					
11940af					
12095eu					
15070eu					
15260na					
15310as					
15400af					
15420af					
17640va					
17695eu					
17860af					
17880af					
21470af					
21660af					
15255af					
15270me					
17790me					
21455me					
6020af					
15570af					
7150as					
9555as					
15335af					
15360af					
17595af					
3330					
6055					
6180eu					
9700eu					
9760me					
11710me					
15205me					
15245me					

SELECTED PROGRAMS

Sundays

- 1600 KSDA, Guam: AWR Magazine. See S 0200.
 1600 Radio Norway Int'l: Norway Today. See S 0000.
 1605 Christian Science Monitor: The Sunday Service.
 1610 Yemen Radio: Commentary, press analysis.
 1615 BBC: Feature. See S 0230.
 1615 KSDA, Guam: Digging Up The Past. See S 0230.
 1615 Yemen Radio: Press Review. Local, Arab, and international.
 1620 Yemen Radio: Western Songs And Music. The latest pop.
 1630 KSDA, Guam: Power to Cope with life's problems.
 1645 BBC: Letter From America. See S 0615.

Mondays

- 1600 KSDA, Guam: Music Scrapbook. See S 2300.
 1606 Christian Science Monitor: See M 0006.
 1610 Yemen Radio: Commentary. See S 1610.
 1615 BBC: New Ideas. Innovative developments in technology.
 1615 KSDA, Guam: Bible in Living Sound. See S 2315.
 1615 Yemen Radio: Music. Traditional songs from Yemen.
 1620 Yemen Radio: Features on Yemen.
 1630 KSDA, Guam: Greatest Story Ever Told. See M 0030.
 1635 BBC: Talks. Nick Rankin looks at "Trees" (thru April 6th).
 1640 Radio Netherlands: Newline. See S 0040.
 1645 BBC: The World Today. Int'l topics.
 1645 KSDA, Guam: Voice of Prophecy. See S 0030.
 1654 Radio Netherlands: The Research File. See M 1154.

Tuesdays

- 1600 KSDA, Guam: Music Scrapbook. See S 2300.
 1606 Christian Science Monitor: See M 0006.
 1610 Yemen Radio: Commentary. See S 1610.
 1615 BBC: Megamix. See T 1130.

- 1615 KSDA, Guam: Bible in Living Sound. See S 2315.
 1615 Yemen Radio: Music. See M 1615.
 1620 Yemen Radio: Spotlight. Current affairs in Yemen.
 1630 KSDA, Guam: Greatest Story Ever Told. See M 0030.
 1640 Radio Netherlands: Newline. See S 0040.
 1645 BBC: The World Today. See M 1645.
 1645 KSDA, Guam: Voice of Prophecy. See S 0030.
 1654 Radio Netherlands: Mirror Images. See T 1154.

Wednesdays

- 1600 KSDA, Guam: Music Scrapbook. See S 2300.
 1606 Christian Science Monitor: See M 0006.
 1610 Yemen Radio: Commentary. See S 1610.
 1615 BBC: Rock/Pop Music. See T 0630.
 1615 KSDA, Guam: Bible in Living Sound. See S 2315.
 1615 Yemen Radio: Press Review. See S 1615.
 1620 Yemen Radio: Economic Corner.
 1630 KSDA, Guam: Greatest Story Ever Told. See M 0030.
 1640 Radio Netherlands: Newline. See S 0040.
 1645 BBC: The World Today. See M 1645.
 1645 KSDA, Guam: Voice of Prophecy. See S 0030.
 1654 Radio Netherlands: Feature. See W 1154.

Thursdays

- 1600 KSDA, Guam: Music Scrapbook. See S 2300.
 1606 Christian Science Monitor: See M 0006.
 1610 Yemen Radio: Commentary. See S 1610.
 1615 BBC: Network UK, issues and events in the UK.
 1615 KSDA, Guam: Bible in Living Sound. See S 2315.
 1615 Yemen Radio: Music. See M 1615.
 1620 Yemen Radio: Mosaic. Arts and variety.
 1630 KSDA, Guam: Greatest Story Ever Told. See M 0030.

- 1640 Radio Netherlands: Newline. See S 0040.
 1645 BBC: The World Today. See M 1645.
 1645 KSDA, Guam: Voice of Prophecy. See S 0030.
 1654 Radio Netherlands: Media Network. See H 1154.

Fridays

- 1600 KSDA, Guam: Music Scrapbook. See S 2300.
 1606 Christian Science Monitor: News. See M 0006.
 1610 Yemen Radio: Commentary. See S 1610.
 1615 BBC: Science In Action. Latest innovations.
 1615 KSDA, Guam: Bible in Living Sound. See S 2315.
 1615 Yemen Radio: Music. See M 1615.
 1620 Yemen Radio: Yemen This Week.
 1630 KSDA, Guam: Greatest Story Ever Told. See M 0030.
 1640 Radio Netherlands: Newline. See S 0040.
 1645 BBC: The World Today. See M 1645.
 1645 KSDA, Guam: Voice of Prophecy. See S 0030.
 1654 Radio Netherlands: 1992. See F 1154.

Saturdays

- 1600 KSDA, Guam: Micronesia Snapshots. Culture.
 1600 Radio Norway Int'l: Norway Today. See S 0000.
 1605 Christian Science Monitor: See S 0005.
 1610 Yemen Radio: Commentary. See S 1610.
 1615 BBC: Sportsworld. See A 1430.
 1615 KSDA, Guam: DX Asiawaves. See S 0215.
 1615 Yemen Radio: Music. See M 1615.
 1620 Yemen Radio: International Events.
 1630 KSDA, Guam: Digging Up The Past. See S 0230.
 1640 Radio Netherlands: Newline. See S 0040.
 1645 KSDA, Guam: Probe. See S 0245.
 1654 Radio Netherlands: Airtime Africa.

shortwave guide

1700 UTC

[12:00 AM EST/9:00 AM PST]

1700-1800	Algeria, R. Algiers	17745na			
1700-1800	Australia	5995va	6060va	6080va	7240va
		9580va	9860va	11910va	12000va
		13605va	13755va		
1700-1710	Bafoussam, Cameroon	4000do			
1700-1800	Bahrain Broadcasting Svc	6010me			
1700-1730	BBC London	3255af	7160me	15260na	21470af
		21660af			
1700-1730	BBC London	3915as	5975as	6005af	6180eu
		6190af	6195eu	9410eu	9630af
		9740eu	11750as	11775na	12095eu
		15070eu	15310as	15400af	15420af
		17640va	17695eu	17860af	17880af
1700-1800	CFCX Montreal, Canada	6005do			
1700-1800	CFRX Toronto, Canada	6070do			
1700-1800	CFVP Calgary, Canada	6030do			
1700-1800	China, Radio Beijing	7405af	9570af	11575af	
1700-1800	CHNX Halifax, Canada	6130do			
1700-1800	CKZU Vancouver, Canada	6160do			
1700-1800	CSMonitor World Svc, Bost	11580as	13625as	21640af	
1700-1800 sa	CSMonitor World Svc, Bost	15665na	17555am		
1700-1800	Egypt, Radio Cairo	15255af			
1700-1800	Eq. Guinea, R. East Africa	7190af			
1700-1800	Ghana, Radio 1, Accra	4915do			
1700-1705	Ghana, Radio 2, Accra	7295do			
1700-1730	HCJB Quito, Ecuador	15270me	17790me	21455me	
1700-1800	Japan NHK	7140as	9505am	11815na	15345me
1700-1800 mtwhf	Kenya, Voice of	4935do			
1700-1800	KSDA Guam	13720as			
1700-1800	KTN Salt Lake City	15590am			
1700-1800	Moscow World Svc	5905eu	6055eu	6175eu	7170eu
		7260eu	7330eu	7345eu	7370eu
		9685eu	9720eu	9730eu	9755eu
		9830as	9895as	11630af	11730af
		13670am	15450am	15485am	17670am
1700-1750	N. Korea, Radio Pyongyang	9325va	9640va	9977va	11705va
1700-1725	Netherlands	6020af	15570af		
1700-1800	Nigeria	3326do	4990do		
1700-1800	Nigeria, Voice of	7255af			
1700-1730 as	Norway	9655eu			
1700-1800	Pakistan	11570eu	15550eu		
1700-1730 mtwhf	Portugal	15425me			
1700-1730	RCI Montreal	5995eu	7235eu	13650eu	15325eu
		17820eu	21545eu		
1700-1800	RFPI, Costa Rica	15030na	21465na		
1700-1800 mtwhf	RTV Morocco	15335af	17595af	17815af	
1700-1800	Saudi Arabia BC Svc	9705eu	9720eu		
1700-1728	SLBS, Sierra Leone	3316do	5980do		
1700-1800	South Africa, Radio RSA	15160af			
1700-1730	Sri Lanka B'casting Corp.	6075as	9720as		
1700-1800	Tanzania	5985af	9684af	11765af	
1700-1730	TWR Swaziland	3200af	9520af		
1700-1730	VOA	3980eu	6040me	9575af	9700eu
		9760me	11920af	15205me	15410af
		15445af	15580af	17800af	21625af
1700-1800	VOA	6110as	7125as	9645as	15395as
1700-1800	WHRI Noblesville, Indiana	13760	15105		
1700-1800 smtwhf	WMLK Bethel, Penna.	9465eu			
1700-1800	WRNO New Orleans	15420			
1700-1800	WWCR Nashville	15690	17525		
1700-1800	WYFR Okeechobee, FL	21500va			
1700-1800	Zambia, Radio Zambia Int'l	9505af	11880af	17895af	
1706-1800	Ghana, Radio 2, Accra	3366do			
1715-1745	BBC London	9560ca	21660ca		
1715-1730	Cameroon, Radio Buea	3970do			
1715-1730	Vatican Radio	6245eu	7250eu		
1728-1800	SLBS, Sierra Leone	3316do			
1730-1800	BBC London	3255af	3915as	5975as	6005af
1730-1800	BBC London	6180eu	6190af	6195eu	9410eu
		9740me	11775na	12095eu	15260na
		15400af	15420af	17640va	17695eu
		21660af		17860af	17880af
1730-1745 a	Cameroon, Radio Douala	4795do			
1730-1745	Cyprus, Radio Bayrak	6150va			
1730-1800	Romania, R. Romania Int'l	11790af	15340af	15365af	17720af

1730-1800	TWR Swaziland	3200af			
1730-1800	Vatican adio	11625af	15090af	17730af	
1730-1800	VOA	6040eu	9700eu	9760eu	15205eu
1730-1800	VOA	9575af	11920af	15410af	15580af
		17800af	21625af		
1740-1800	Cameroon Radio-TV	4850do			
1745-1800 mtwhf	Cameroon, Radio Douala	4795do			
1745-1800 tent	RTV Madagascar	3232do	3286do	5005do	

1800 UTC

[1:00 PM EST/10:00 AM PST]

1800-1900	Abidjan, R. Ivory Coast	11920af			
1800-1900	Afghanistan	6145eu	7215eu	9635am	
1800-1900	All India Radio, Delhi	11935af			
1800-1900	Australia	5995va	6060va	6080va	7240va
		9580va	9860va	11910va	12000va
		13605va	13755va		
1800-1900 tent, vl	Baghdad, Iraq Int'l	11740eu			
1800-1900	Bahrain Broadcasting Svc	6010me			
1800-1830	BBC London	3255af	3955eu	5975as	6180eu
		6195eu	7160me	7325af	9410eu
		11750as	12095eu	15070eu	15310as
		17880af			
1800-1900	Brazil, Radiobras, Brasilia	15265eu			
1800-1900	Cameroon Radio-TV	4850do			
1800-1840 w	Cameroon, Radio Bertoua	4750do			
1800-1845 mtwhf	Cameroon, Radio Douala	4795do			
1800-1900	CBC, Quebec Northern Svc	9625			
1800-1900	CFCX Montreal, Canada	6005do			
1800-1900	CFRX Toronto, Canada	6070do			
1800-1900	CFVP Calgary, Canada	6030do			
1800-1900	CHNX Halifax, Canada	6130do			
1800-1900	CKZU Vancouver, Canada	6160do			
1800-1900 sa	CSMonitor World Service	17555am			
1800-1900	CSMonitor World Svc, Bost	13625as	15665na	21640af	
1800-1830	Egypt, Radio Cairo	15255af			
1800-1900	Eq. Guinea, R. East Africa	7190af			
1800-1900	Ethiopia, Voice of	9662af			
1800-1830 tent	Georgian Radio, Tbilisi	12070me			
1800-1900	Ghana, Radio 1, Accra	4915do			
1800-1900	Ghana, Radio 2, Accra	7295do			
1800-1900 mtwhf	Kenya, Voice of	4935do			
1800-1815	Kol Israel	11587na	11675eu	15590af	17575sa
1800-1900	Korea, Seoul	15575eu			
1800-1900	KTN Salt Lake City	15590			
1800-1810	Malawi B'casting Corp.	3381do			
1800-1900	Moscow World Svc	7170eu	7260eu	7330eu	7345as
		7370as	7420as	9540eu	9575as
		9755af	9765af	9795af	9830af
		11630af 1	1745	11840am	12055
				13760am	
1800-1900	Mozambique	3265af	4855af	9618af	
1800-1900	New Zealand, RNZI	15120pa			
1800-1900	Nigeria	3326do	4990do		
1800-1830 mtwhf	RCI Montreal	13670af	15260af	17820af	
1800-1900 as	RCI Montreal	13670me	15260me	17820me	
1800-1900	RFPI, Costa Rica	13630am	15030am	21465am	
1800-1830	RTV Congolaise	3265af	4765af		
1800-1900	Saudi Arabia BC Svc	9705eu	9720eu		
1800-1900	SLBS, Sierra Leone	3316do			
1800-1900	Tanzania	5985af	9684af	11765af	
1800-1845	TWR Swaziland	3200af	9600af		
1800-1830	Vietnam, Voice of	9840eu	12020eu	15010eu	
1800-1900	VOA	6040eu	9700eu	9760me	15205me
1800-1900	VOA	6040eu	9575af	9700eu	9760me
		11920af	15205me	15410af	15445
		15580af	17800af	21625af	
1800-1900	WHRI Noblesville, Indiana	13760na	17830sa		
1800-1900	WMLK Bethel, Penna.	9465eu			
1800-1900	WRNO New Orleans	15420na			
1800-1900	WWCR Nashville	15690na	17525na		
1800-1900	WYFR Okeechobee, FL	21500va			
1800-1900	Zambia, Radio Zambia Int'l	9505af	11880af	17895af	
1815-1900	Bangladesh	12030as	15255as		
1815-1830	Lebanon, Radio Voice of	5me	6549.5		
1830-1900	Albania, Radio Tirana	7120eu	9480eu		

shortwave guide

1800 UTC cont'd

1830-1900	Austria, ORF Vienna	5945eu	6155eu	12010me	13730af
1830-1900	BBC London	3255af	3955eu	6005af	6180eu
	6195eu	7325eu	9410eu	9600af	11750as
	15070eu	15400af	17880af	21660af	12095eu
1830-1900	Bulgaria, Radio Sofia	6035eu	9560eu	9700af	11680eu
		11720af	11735af		
1830-1900 a	Latvia, Radio Riga	5935eu			
1830-1900	Netherlands	6020af	15570af	17605af	21685af
1830-1855	Polish Radio Warsaw	5995eu	6135eu	7285eu	9525eu
1830-1900	Sri Lanka B'casting Corp.	9720eu	15120eu		
1830-1900	Swiss Radio Int'l	9885af	11955af		
1840-1850 mtwhfa	Greece, Voice of	11645af	12105af	15650af	
1840-1850 mtwhfa	Venezuela, Radio Nacional	9540om			
1845-1900	Ghana B'casting Corp.	6130af			
1845-1900	RTV Guinea, Conakry	4900af	7125af		
1845-1900 s	RTV Mali	4783do	4835do	5995do	7285do
1845-1900	TWR Swaziland	3200af			

1900 UTC

[2:00 PM EST/11:00 AM PST]

1900-2000	All India Radio, Delhi	11935af				
1900-2000	Argentina,RAE BuenosAires	15345eu				
1900-2000	Australia	6080va	7240va	9580va	9860va	
		11720va	11910va	12000va	13605va	
		13755va				
1900-2000	Bahrain Broadcasting Svc	6010me				
1900-1930	BBC London	3255af	3955eu	6005af	6180eu	6190af
	6195eu	7160me	7325eu	9410eu	9600af	9630af
	11750pa	12095eu	15070eu	15400af	17880af	21660a
1900-1925	BRT Brussels, Belgium	5910eu	9905eu	15515af		
1900-2000	Bulgaria, Radio Sofia	6035eu	9560eu	9700af	11680eu	
		11720af	11735af			
1900-1945	Cameroon Radio-TV	4850na				
1900-2000	CFCX Montreal, Canada	6005do				
1900-2000	CFRX Toronto, Canada	6070do				
1900-2000	CFVP Calgary, Canada	6030do				
1900-2000	China, Radio Beijing	6955af	9440af			
1900-2000	CHNX Halifax, Canada	6130do				
1900-2000	CKZU Vancouver, Canada	6160do				
1900-2000	CSMonitor World Svc, Bost	13625as	15665na	21640af		
1900-2000 sa	CSMonitor World Svc, Bost	17555am				
1900-2000	Cuba, RHC Havana	17705eu				
1900-1950	Deutsche Welle, Germany	9765af	11765af	11785af	11905af	
		13790af	15350af	17810af		
1900-2000	Eq.Guinea, R.East Africa	7190af				
1900-2000	Ghana B'casting Corp.	6130af				
1900-2000	Ghana, Radio 1, Accra	4915do				
1900-2000	Ghana, Radio 2, Accra	7295do				
1900-2000	HCJB Quito, Ecuador	15270eu	17790eu	21455eu	21480eu	
1900-1930	Japan NHK	9505am	9640am	9645au	11850af	
1900-2000 mtwhf	Kenya, Voice of	4935do				
1900-2000	KTVN Salt Lake City	15590am				
1900-2000	KVOH Los Angeles	17775am				
1900-2000	Moscow World Svc	7260eu	7330eu	9540eu	9630eu	
	9685am	9725as	9755af	9765af	9780am	9795af
	9855af	9860eu	9875am	9895af	11630af	11685eu
	11745af	11840am	12050af	12055af		
1900-1925	Netherlands	6020af	15570af	17605af	21685af	
1900-2000 smtwhf	New Zealand, RNZI	15120pa				
1900-2000	Nigeria	3326do	4990do			
1900-2000	Nigeria, Voice of	7255af				
1900-1930 a,s	Norway	15220na				
1900-1930 mtwhf	RCI Montreal	13670me	15260me	17820me		
1900-2000	RFPI, Costa Rica	13630am	15030am	21465am		
1900-2000 s	RTV Morocco	15335af				
1900-2000	Saudi Arabia BC Svc	9705eu	9720eu			
1900-2000	SLBS, Sierra Leone	3316do				
1900-2000	Spanish National Radio	6130as	9675eu	9685af	9875eu	
1900-2000	Sri Lanka B'casting Corp.	9720eu	15120eu			
1900-1915	Tanzania	5985af	9684af	11765af		
1900-2000	TWR Swaziland	3200af	3240af			

1900-1930	Vietnam, Voice of	9840eu	12020eu	15010eu	
1900-2000	VOA	6040eu	9525as	9575af	9700eu
		9760eu	11710eu	11870as	11920af
		15180au	15205eu	15410af	15445af
		15495af	15580af		
1900-2000	WHRI Noblesville, Indiana	13760	17830		
1900-2000	WMLK Bethel, Penna.	9465eu			
1900-2000	WRNO New Orleans	15420			
1900-2000	WWCR Nashville	15690am	17525am		
1900-2000	WYFR Keechobee, FL	15355eu	21615af		
1900-2000	Zambia, Radio Zambia Int'l	9505af	11880af	17895af	
1910-1915	Botswana, Gaborone	3356af			
1920-1930	Cameroon, Radio Buea	3970do			
1920-1930 mtwhfa	Greece, Voice of	7450eu	9395eu		
1930-2000	BBC London	3255af	3955eu	6005af	6180eu
		6195eu	7160me	7325eu	9410eu
		11750pa	12095eu	15070eu	15400af
1930-1940 irr	Burkina Faso	4815af	7230af		
1930-2000	Czechoslovakia, R.Prague	6055eu	7345eu		
1930-2000	Finland	6120eu	9730af	11755af	
1930-2000 tes	KFBS Saipan	9475af			
1930-2000	Romania, R.Romania Int'l	5990eu	6105eu	7145eu	7195eu
		9690eu			
1930-2000	Sweden	6065eu	9655eu	15270eu	
1930-2000	VOIRI Teheran	6140eu	9022eu		
1930-2000	Yugoslavia, Radio Federal	6100eu	15140af		
1935-1955	Italy, RAI, Rome	7275eu	9710eu	11800eu	
1935-1945	RTV Togo	5047af			
1940-2000 smwha	Ulaanbaatar R., Mongolia	11850eu	12015eu		
1945-2000	Korea World News	6135as			
1950-2000	Sudan Nat'l B'casting Cor	9540do	9550do	11635do	

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Month

Year

[illegible]

2000 UTC

[3:00 PM EST/12:00 PM PST]

2000-2100	Australia	6080va	7240va	9580va	9860va
		11720va	11910va	11930va	12000va
		13605va	13755va		
2000-2100	Bahrain Broadcasting Svc	6010me			
2000-2030	BBC London	3255af	3955eu	5975eu	6005af 6180eu
	6190af	6195eu	7160me	7180pa	7325eu 9410eu
	9600as	9630af	11750pa	12095eu	15070eu 15260sa
	15340pa	15400af	17880af	21660af	
2000-2100	CFCX Montreal, Canada	6005do			
2000-2100	CFRX Toronto, Canada	6070do			
2000-2100	CFVP Calgary, Canada	6030do			
2000-2100	China, Radio Beijing	9440af	9920eu	11500eu	11715af
		15170af			
2000-2100	CHNX Halifax, Canada	6130do			
2000-2100	CKZU Vancouver, Canada	6160do			
2000-2100	CSMonitor World Svc, Bost	9455as	9985eu	13625pa	13770am
		17555am			
2000-2100	Cuba, RHC Havana	15135af	17705na		
2000-2100	Eq. Guinea, R. East Africa	7190af			
2000-2100 tent	Georgian Radio, Tbilisi	12015me			
2000-2100	Ghana, Radio 1, Accra	4915do			
2000-2100	Ghana, Radio 2, Accra	7295do			
2000-2100	Indonesia, Voice of	7125as	9675as	11752as	11785as
2000-2030	Islamic Rep of Iran VOIRI	6140eu	9022eu		
2000-2010 mtwhf	Kenya, Voice of	4935do			
2000-2100 tes	KFBS Saipan	9475af			
2000-2100	King of Hope, Lebanon	6280me			
2000-2030	Kol Israel	7465am	9435am	11587am	11605am
		11675eu	17575af		
2000-2100	KTBN Salt Lake City	15590am			
2000-2100	KVOH Los Angeles	17775am			
2000-2010 w	Malawi B'casting Corp.	3381do			
2000-2100	Moscow World Svc	7170eu	7330eu	9540eu	9563
	9685am	9710am	9720am	9725af	9795eu
	9855af	9860am	9875af	9895eu	11630af 11685af
	11840am	12050af	12055eu	12060me	
	15425me				
2000-2050	N. Korea, Radio Pyongyang	6576me	9325	9345eu	9640eu
		9977af			
2000-2100 smtwhf	New Zealand, RNZI	15120pa			
2000-2100	Nigeria	3326do	4990do		
2000-2030	Nigeria, Voice of	7255af			
2000-2030 as	Norway	17730af	17730sa		
2000-2055	Polish Radio Warsaw	7145eu	7270eu	9525eu	
2000-2030 mtwhf	Portugal	11740eu			
2000-2030	RCI Montreal	5995eu	7235eu	11945eu	13650eu
		15140eu	15325eu	17875eu	
2000-2100	RFPI, Costa Rica	13630na	15030na	21465am	
2000-2030	Romania, R. Romania Int'l	5990eu	6105eu	7145eu	7195eu
		9690eu			
2000-2100	Saudi Arabia BC Svc	9705eu	9720eu		
2000-2100	SLBS, Sierra Leone	3316do			
2000-2030	Sweden	6065eu	9655eu	15270	
2000-2030	Swiss Radio Int'l	3985eu	6165eu	9535eu	
2000-2100	TWR Swaziland	3200af	3240af		
2000-2010 smwha	Ulaanbaatar R., Mongolia	11850eu	12015eu		
2000-2030	Vatican Radio	11625af	15090af	17730af	
2000-2100	VOA	6040eu	9700eu	9760eu	11710eu
		15160eu	15205eu	15410af	15445af
		15494af	15580af	17800af	21625af
2000-2100	WHRI Noblesville, Indiana	13760af	17830sa		
2000-2100	WMLK Bethel, Penna.	9465eu			
2000-2100	WRNO New Orleans	15420			
2000-2100	WWCR Nashville	15690	17525		
2000-2100	WYFR Okeechobee, FL	7355eu	9590	15566eu	17750af
		21525eu			
2000-2100 s	Zambia, Radio Zambia Int'l	9505af	11880af	17895af	
2005-2100	Syria, Radio Damascus	12085na	15095na		
2010-2100 sa	Kenya, Voice of	4935do			
2015-2030	Benin, Voice of the Rev.	4870af	5025af		
2025-2045	Italy, RAI, Rome	7235me	9575me	11800me	
2030-2100	BBC London	3255af	3955eu	5975ca	6005af 6040
	6180eu	6190af	6195eu	7180pa	7325eu 9410eu
	11750pa	12095eu	15070eu	15260sa	15340pa 15400af
	15495	15580	17800	21485	

2030-2100	Deutsche Welle	9985			
2030-2100	Egypt, Radio Cairo	15375af			
2030-2100	IRRS Milan, Italy	7125eu			
2030-2100	Korea, Seoul	6480eu	7550af	15575eu	
2030-2100	Netherlands	7285	9895af	11660af	13700af
2030-2100	RCI Montreal	6010eu	7230eu	9650eu	11945eu
		13650eu	15140eu	15325as	17820
	17875as				
2030-2100	Vietnam, Voice of	9840eu	12020eu	15010eu	
2045-2100	All India Radio, Delhi	7412eu	9665eu	9910eu	11620eu
		11715eu	15265eu		
2045-2100	Bulgaria, Radio Sofia	9560eu	11680af	11735af	
2045-2100	Korea World News	5975as			
2050-2100	Vatican Radio	5885eu	7250eu		

2100 UTC

[4:00 PM EST/1:00 PM PST]

2100-2200	Angola, R. Nacional	3355af	9535af		
2100-2200	Australia	6060va	11720pa	11880va	13605va
		13705va	15320va	21740va	
2100-2106	Bahrain Broadcasting Svc	6010me			
2100-2130	BBC London	3255af	3955eu	5975ca	6005af
		6180eu	6195as	7325eu	9410eu
		9590na	11750pa	12095eu	15070na
		15260sa	15340pa	15400af	
2100-2130	Bulgaria, Radio Sofia	9560eu	11680af	11735af	
2100-2200	CFCX Montreal, Canada	6005do			
2100-2200	CFRX Toronto, Canada	6070do			
2100-2200	CFVP Calgary, Canada	6030do			
2100-2130	China, Radio Beijing	11715af	15170af		
2100-2200	China, Radio Beijing	9920eu	11500eu		
2100-2200	CHNX Halifax, Canada	6130do			
2100-2200	CKZU Vancouver, Canada	6160do			
2100-2200	CSMonitor World Svc, Bost	9455as	9985eu	13625pa	13770am
		17555sa			
2100-2130	Czechoslovakia, R. Prague	5930eu	6055eu	7345eu	9605eu
2100-2150	Deutsche Welle, Germany	6185as	9670as	9765as	11785as
		15350as			
2100-2200	Egypt, Radio Cairo	15375af			
2100-2200	Eq. Guinea, R. East Africa	7190af			
2100-2130 tent	Georgian Radio, Tbilisi	11760eu			
2100-2200	Ghana, Radio 1, Accra	4915do			
2100-2200	Ghana, Radio 2, Accra	7295do			
2100-2200	Hungary, Radio Budapest	6110eu	9835eu	11910eu	
2100-2200	IRRS Milan, Italy	7125eu			
2100-2200	Japan NHK	11815me	11840eu	15430eu	17810as
		17890as			
2100-2130	King of Hope, Lebanon	6280me			
2100-2130	Korea, Seoul	6480eu	7550af	15575eu	
2100-2200	KTBN Salt Lake City	15590			
2100-2200	KVOH Los Angeles	17775			
2100-2110	Malawi B'casting Corp.	3381do			
2100-2200	Moscow World Svc	5950eu	5960eu	6175eu	7150am
		7170eu	7240af	7255af	7330eu
		7340af	7390af	9450eu	9695eu
		9710am	9720am	9725af	9765af
		9795af	9855af	9860eu	9895eu
		9895eu	11685eu	11840am	12050me
		12055me	12060as	15425as	21480as
2100-2125	Netherlands	7285	9860af	9895af	11660af
		13700af			
2100-2200	New Zealand, RNZI	15120pa			
2100-2200	Nigeria	3326do	4990do		
2100-2130 as	Norway	9590eu			
2100-2130 mtwhf	Portugal	15250af			
2100-2200	RFPI, Costa Rica	13630na	15030na	21465am	
2100-2130	Romania, R. Romania Int'l	5990eu	6105eu	7145eu	7195eu
2100-2200	SLBS, Sierra Leone	3316do			
2100-2200	Spanish National Radio	9875eu			
2100-2200	Sri Lanka B'casting Corp.	15120as			
2100-2130	Swiss Radio Int'l	9885af	12035af	13635af	15525af

2100 UTC cont'd

2100-2105	Syria, Radio Damascus	12085na	15095na		
2100-2200	Turkey, Voice of	9445eu			
2100-2115	TWR Swaziland	3240af			
2100-2110	Vatican Radio	5935eu	7250eu		
2100-2110	Vatican Radio	5885eu	7250eu		
2100-2200	VOA	6040eu	9700eu	9760me	11710me
		11870pa	11960me	15185pa	15205me
		15410af	15495af	15580af	17735pa
		17800af	21485af	21625af	
2100-2200	WHRI Noblesville, Indiana	13760	17830		
2100-2200	WMLK Bethel, Penna.	9465eu			
2100-2200	WRNO New Orleans	15420			
2100-2200	WWCR Nashville	15690	17525am		
2100-2200	WYFR Okeechobee, FL	7355eu	15566eu	17750af	21525eu
2100-2200	Zambia, Radio Zambia Int'l	9505af	11880af	17895af	
2110-2200	Syria, Radio Damascus	12085na	15095na		
2115-2130 mtwhf	BBC London Caribbean Rpt.	15140ca	17715ca		
2115-2200	Egypt, Radio Cairo	9900eu			
2115-2130 s	Indonesia, R. Republik	6070do			
2130-2200	Austria, ORF Vienna	5945eu	6155eu	9870af	
2130-2200	BBC London	3255af	3955eu	5975ca	6005af
		6195as	7325eu	9410eu	9590na
		15070na	15260sa	15340pa	15400af
2130-2200	BBC London Falkland Is Sv	13660sa			
2130-2145	Cameroon, Radio Buea	3970do			
2130-2200 mh	Estonia, Tallinn	5925eu	9560eu		
2130-2200	HCJB Quito, Ecuador	15270eu	17790eu	21455eu	
2130-2200 smtwhf	King of Hope, Lebanon	6280me			
2130-2200	RCI Montreal	11880af	15150af	17820af	
2130-2200	Sweden	6065eu			
2140-2150 mtwhfa	Venezuela, Radio Nacional	9540am			
2145-2200	Cameroon Radio-TV	4850na			

2200 UTC

[5:00 PM EST/2:00 PM PST]

2200-2230	All India Radio, Delhi	7412eu	9665eu	9910eu	11620eu
		11715eu	15265eu		
2200-2300	Australia	11880va	11930va	13605va	13705va
		15160va	15320va	15365va	17795va
		21740va			
2200-2210	Bafoussam, Cameroon	4000do			
2200-2300 tent, vl	Baghdad, Iraq Int'l	11740eu	11880		
2200-2300	BBC London	5975na	6195as	7325am	9410eu
		9590na	9915ca	11750sa	11945as
		15070na	15260sa	15340as	15400af
				17830as	
2200-2225	BRT Brussels, Belgium	5910eu	9905eu	15515af	
2200-2215	Cameroon Radio-TV	4850na			
2200-2300	CBC N. Quebec, Canada	9625do			
2200-2300	CFCX Montreal, Canada	6005do			
2200-2300	CFRX Toronto, Canada	6070do			
2200-2300	CFVP Calgary, Canada	6030do			
2200-2230	China, Radio Beijing	3985eu			
2200-2300	China, Radio Beijing	7170eu	9880eu		
2200-2300	CHNX Halifax, Canada	6130do			
2200-2300	CKZU Vancouver, Canada	6160do			
2200-2300	CSMonitor World Svc, Bost	9465na	9985eu	13625as	15405as
		17555am			
2200-2300	Cuba, RHC Havana	7215af	9620am		
2200-2230	Czechoslovakia, R. Prague	5930eu	6055eu	7345eu	9605eu
2200-2245	Egypt, Radio Cairo	9900eu			
2200-2300 sa	Eq Guinea, R. East Africa	7190af			
2200-2230 tent	Georgian Radio, Tbilisi	11760eu			
2200-2300	Ghana, Radio 1, Accra	4915do			
2200-2300	Ghana, Radio 2, Accra	7295do			
2200-2300	Hungary, Radio Budapest	9835eu			
2200-2230 a	Indonesia, Radio Republik	3385do	4805do		
2200-2225	Italy, RAI Rome	5990as	9710as	11800as	
2200-2230 s	KGEI San Francisco	15280sa	17750		
2200-2300	KTN Salt Lake City	15590			
2200-2300 smtwha	Malaysia, RTM Radio 4	7295do			

2200-2300	Moscow World Svc	5950eu	5960eu	6045am	6055eu
	6175eu	7115am	7150am	7185eu	7240af
	7295af	7330af	7340af	9520as	9720am
	9755af	9765am	9790eu	9855af	9860af
	9890eu	12050as	12055af	15130as	15425as
	17655au	17665au	17700am	17720am	21480am
2200-2300	New Zealand, RNZI	17770pa			
2200-2300	Nigeria	3326do	4990do		
2200-2255	Polish Radio Warsaw	1503eu	5995eu	6135eu	7270eu
2200-2300	RCI Montreal	5995eu	6162eu	7180eu	9760eu
		11705eu	11945eu	13650eu	15325eu
2200-2300	RFPI, Costa Rica	13630ca	15030ca	21465am	
2200-2218	RTV Congolaise	4765do	5985do		
2200-2300	SBC Radio 1, Singapore	5010do	5052do	11940do	
2200-2300	SLBS, Sierra Leone	3316do			
2200-2230	Sweden	6065eu			
2200-2210	Syria, Radio Damascus	12085na	15095na		
2200-2300	Taiwan, V. of Free China,	9852eu	11580eu		
2200-2300	UAE Radio Abu Dhabi	7215na	9600na	9605na	11965na
2200-2300	Ukraine, Radio Kiev	5960eu			
2200-2230	VOA	9530eu	11905me	11960me	15225me
		15445me	17885eu		
2200-2300	VOA	7120as	9770as	11760as	15185au
		15290au	15305au	17735au	17820au
2200-2300	WHRI Noblesville, Indiana	13760na	17830sa		
2200-2300	WINB Red Lion, Penna.	15185	15195		
2200-2300	WRNO New Orleans	15420na			
2200-2300	WWCR Nashville	12160na	15690na		
2200-2300	WYFR Okeechobee, FL	17750eu	21525eu		
2200-2245	Yugoslavia, Radio Federal	6100eu	9505eu		
2200-2215	Zambia, Radio Zambia Int'l	9505af	11880af	17895af	
2230-2300	Albania, Radio Tirana	7215eu	9725eu		
2230-2300	Finland	6120af	9730eu	11755as	
2230-2300	Kazakhstan, R. Alma Ata	11825as	11920as	15215as	15270as
	15315as	15385as	17605as	17715as	17730as
2230-2300	Kazakhstan, R. Alma Ata	3955as	4395as	5035as	5260as
	5945as	5960as	5970as	5985as	6060as
	6125as	6130as	7115as	7235as	7240as
	7320as	9505as	9550as	9705as	7280as
2230-2300	Kol Israel	7465am	9435am	11585am	11605am
		11675sa	17575eu		
2230-2300	Lithuania, Radio Vilnius,	9675eu	9710eu		
2230-2300 mtwhf	RTV Congolaise	4765do			
2230-2300	Swiss Radio Int'l	6035eu	6190eu	9680eu	
2230-2300	VOA	9530eu	11905me	11960me	17885me
2240-2250 smtwhf	Greece, Voice of	11645au			
2245-2300	Bulgaria, Radio Sofia	9595am	9700na	11660eu	11680na
		11720eu	11950na		
2245-2300	Vatican Radio	9600au	9845au	11830au	



The faces behind the voices of
Radio Netherlands, Bonaire.

2300 UTC

[6:00 PM EST/3:00 PM PST]

FREQUENCIES

2300-0000	Australia	11720pa	11750pa	11880va	15160va	2300-2350	N. Korea, Radio Pyongyang	11700na	13650na
		15320pa	15320pa	15365pa	17795as	2300-0000	New Zealand, RNZI	17770pa	
2300-0000	AWR Costa Rica	9725ca	11870ca			2300-2330 as	Norway	11925na	
2300-2330	BBC London	5975na	6175na	6195as	7145as	2300-0000 as	RCI Montreal	9535sa	11940sa
		9410eu	9570pa	9590na	9915sa	2300-2330	RCI Montreal	9535sa	9755na 11730na 11940sa
		11750sa	11945as	11955as	12095na	2300-0000	RFPI, Costa Rica	13630na	15030na 21465am
		15070na	15260sa	15340pa	15400af	2300-0000	SBC Radio 1, Singapore	5010do	5052do 11940do
2300-0000	Bulgaria, Radio Sofia	9595am	9700am	11660eu	11680na	2300-0000	SLBS, Sierra Leone	3316do	
		11720eu	11950na			2300-0000	South Africa, Radio Orion	4810af	
2300-0000	CFCX Montreal, Canada	6005do				2300-0000	Thailand	4830as	9655as 11905as
2300-0000	CFRX Toronto, Canada	6070do				2300-0000	Turkey, Voice of	7185me	9445na 11710eu
2300-0000	CFVP Calgary, Canada	6030do				2300-0000	UAE Radio Abu Dhabi	7215na	9600na 9605na 11965na
2300-0000	CHNX Halifax, Canada	6130do				2300-0000	VOA	7120as	9770as 11760au 15185au
2300-0000	CKZU Vancouver, Canada	6160do						15290au	15305as 17735as 17820as
2300-0000	CSMonitor World Svc, Bost	9465na	9985am	13625as	15405af	2300-0000	VOA	9530me	11905me 11960eu 17885me
		17555af				2300-0000	WHRI Noblesville, Indiana	9495na	13760sa
2300-2305	Ghana, Radio 1, Accra	4915do				2300-0000	WINB Red Lion, Penna.	15145	
2300-2305	Ghana, Radio 2, Accra	7295do				2300-0000	WRNO New Orleans	7355na	
2300-0000	Japan NHK	11735eu	11815am	15195as	15430am	2300-0000	WWCR Nashville	12160na	15690
		17810pa				2315-0000	All India Radio, Delhi	9535as	9910as 11715as 11745as
2300-0000	KSDA Guam	15610as						15110as	
2300-0000	KTBN Salt Lake City	15590na				2315-0000 tent, vi	Baghdad, Iraq Int'l	11830am	15455sa
2300-0000 smtwha	Malaysia, RTM Radio 4	7295do				2330-0000	BBC London	5975na	6175na 6195as 7145as
2300-0000	Moscow World Svc	6045am	7115am	7135as	7150am			9570pa	9590na 9915sa 11750sa
		7185eu	7240af	7255af	7295af			11945as	11955as 12095na 15070na
		7330eu	9520eu	9530af	9725eu			15260sa	17830as
		9765am	9790eu	9860af	9870af	2330-0000 a	Colombia, R. Nacional	11822.5	17865am
		12045as	12050eu	12055af	15130as	2330-0000	Sweden	9695ca	11705ca
		15150as	15425au	17655au	17665au	2330-0000	Vietnam, Voice of	9840as	12020as 15010as
		17700am	17720am	17890am	21480am	2335-2345 smtwhfm	Greece, Voice of	9425sa	11645sa 12105sa
		21690as	21790au						

SELECTED PROGRAMS

Sundays

- 2300 KSDA, Guam: Music Scrapbook. Details unavailable at press time.
- 2300 Radio Norway Int'l: Norway Today. See S 0000.
- 2305 BBC: World Business Review. The previous week's news and upcoming events.
- 2315 BBC: Music With Matthew. Brian Matthew with classical music selections.
- 2315 KSDA, Guam: Bible in Living Sound. Dramatized Bible stories.
- 2330 KSDA, Guam: Voice of Prophecy. See S 0030.

Mondays

- 2300 KSDA, Guam: Music Scrapbook. See S 2300.
- 2305 BBC: World Business Report. The latest news from the markets worldwide.
- 2306 Christian Science Monitor: General Features. See M 0106.
- 2315 BBC: Talks. "Poems By Post" presents reader requests and plenty more (through 30th).
- 2315 KSDA, Guam: Bible in Living Sound. See S 2315.
- 2330 BBC: Multitrack 1: Top 20. Tim Smith presents the smash singles on the UK pop music charts.
- 2330 KSDA, Guam: Voice of Prophecy. See S 0030.
- 2334 Christian Science Monitor: Letterbox. See M 0134.
- 2347 Christian Science Monitor: Religious Article. See M 0147.

Tuesdays

- 2300 KSDA, Guam: Music Scrapbook. See S 2300.
- 2305 BBC: World Business Report. See M 2305.
- 2306 Christian Science Monitor: General Features. See M 0106.
- 2315 BBC: Concert Hall (except 3rd, 10th: International Recital). See S 1515.
- 2315 KSDA, Guam: Bible in Living Sound. See S 2315.
- 2330 KSDA, Guam: Voice of Prophecy. See S 0030.
- 2334 Christian Science Monitor: Letterbox. See M 0134.
- 2347 Christian Science Monitor: Religious Article. See M 0147.

Wednesdays

- 2300 KSDA, Guam: Music Scrapbook. See S 2300.
- 2305 BBC: World Business Report. See M 2305.
- 2306 Christian Science Monitor: General Features. See M 0106.

- 2315 BBC: From Our Own Correspondent. See S 0330.
- 2315 KSDA, Guam: Bible in Living Sound. See S 2315.
- 2330 BBC: Multitrack 2. Graham Bannerman presents new pop records, interviews, news, and contests.
- 2330 KSDA, Guam: Voice of Prophecy. See S 0030.
- 2334 Christian Science Monitor: Letterbox. See M 0134.
- 2347 Christian Science Monitor: Religious Article. See M 0147.



Radio Beijing's English language broadcaster, Fang Lin

Thursdays

- 2300 KSDA, Guam: Music Scrapbook. See S 2300.
- 2305 BBC: World Business Report. See M 2305.
- 2306 Christian Science Monitor: General Features. See M 0106.
- 2315 BBC: Music Review. News and views from the world of classical music.

- 2315 KSDA, Guam: Bible in Living Sound. See S 2315.

- 2330 KSDA, Guam: Voice of Prophecy. See S 0030.

- 2334 Christian Science Monitor: Letterbox. See M 0134.

- 2347 Christian Science Monitor: Religious Article. See M 0147.

Fridays

- 2300 KSDA, Guam: Music Scrapbook. See S 2300.
- 2305 BBC: World Business Report. See M 2305.
- 2306 Christian Science Monitor: General Features. See M 0106.
- 2315 BBC: Worldbrief. A roundup of the week's news headlines and developments.

- 2315 KSDA, Guam: Bible in Living Sound. See S 2315.

- 2330 BBC: Multitrack 3. News and releases from the British alternative music scene.

- 2330 KSDA, Guam: Voice of Prophecy. See S 0030.

- 2334 Christian Science Monitor: Letterbox. See M 0134.

- 2347 Christian Science Monitor: Religious Article. See M 0147.

Saturdays

- 2300 KSDA, Guam: Micronesia Snapshots. See A 1600.
- 2300 Radio Norway Int'l: Norway Today. See S 0000.
- 2305 BBC: Words Of Faith. See S 0309.
- 2305 Christian Science Monitor: Herald of Christian Science. See S 0005.

- 2310 BBC: Book Choice. See H 0140.

- 2315 BBC: A Jolly Good Show. See T 1515.

- 2315 KSDA, Guam: Focus on Living. See A 0215.

- 2330 KSDA, Guam: DX Asilawaves. See S 0215.

- 2345 KSDA, Guam: Probe. See S 0245.

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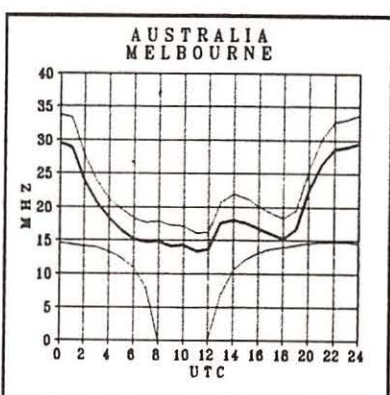
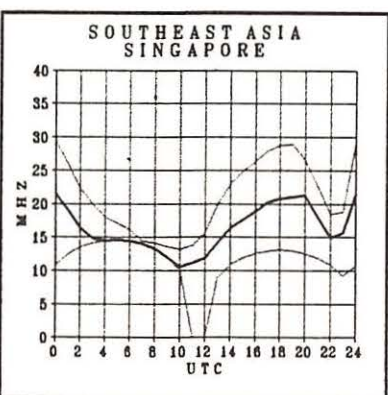
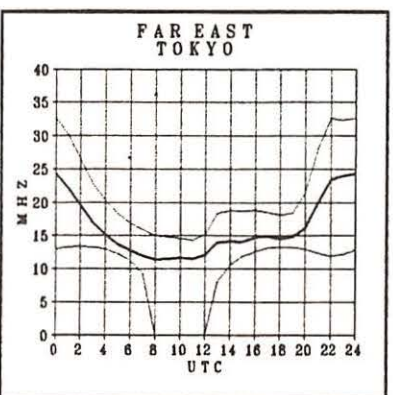
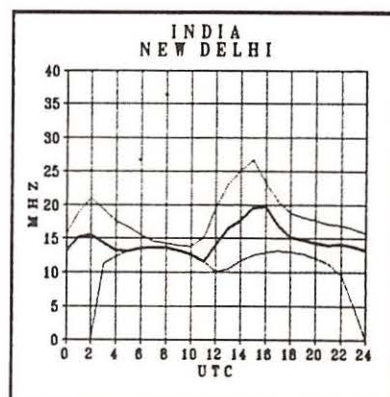
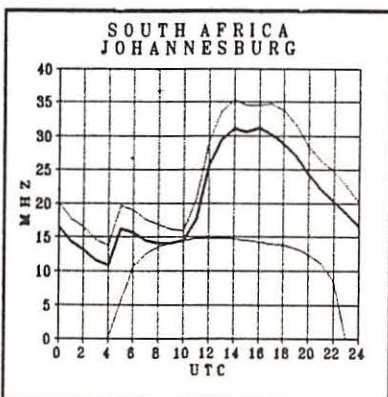
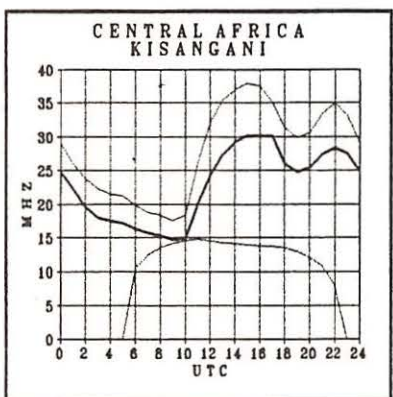
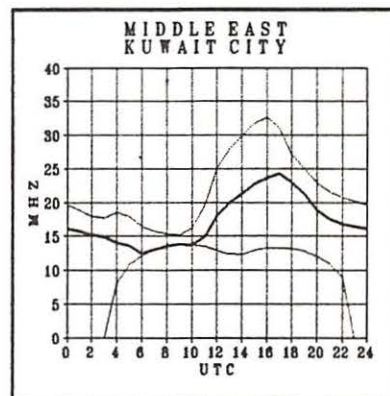
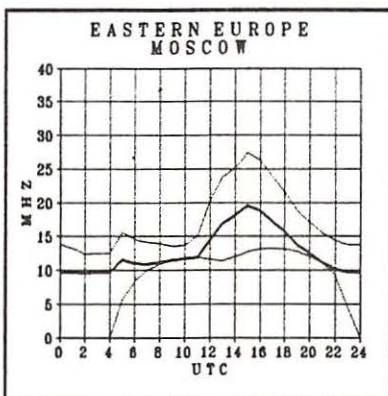
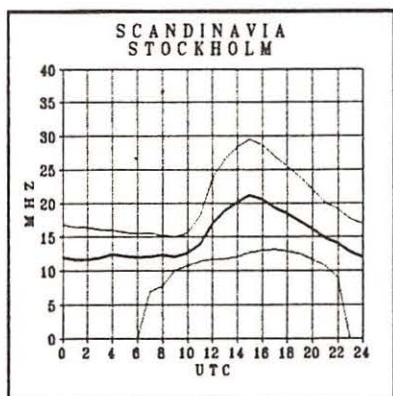
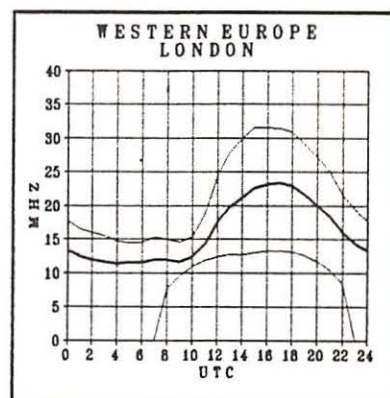
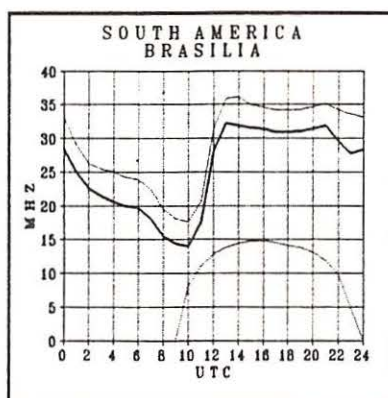
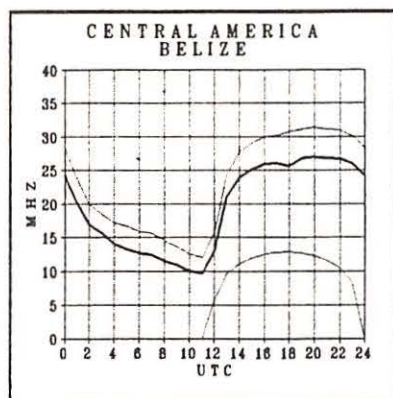
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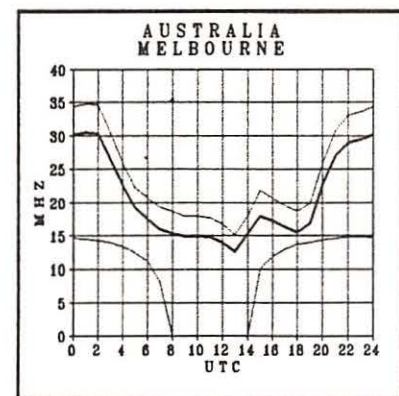
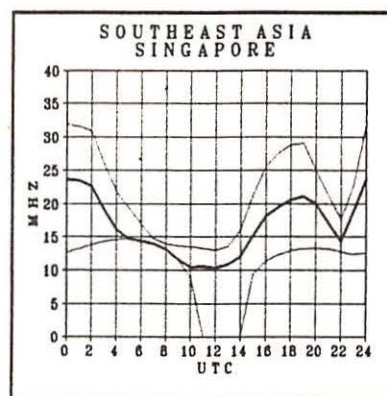
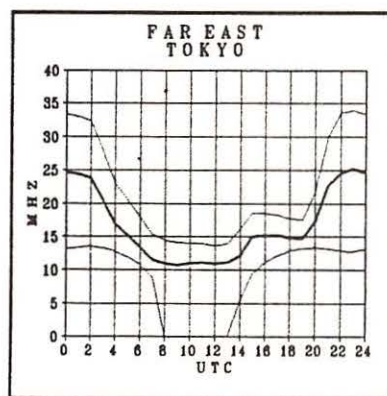
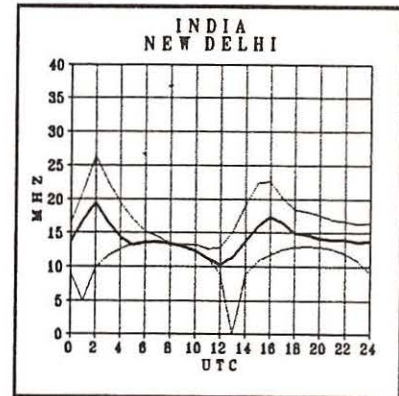
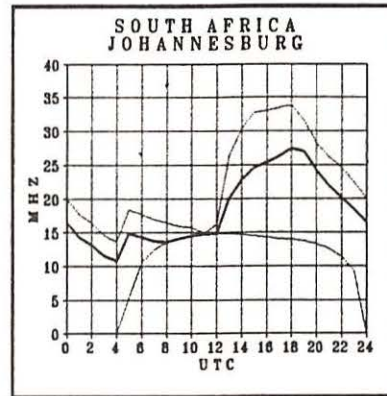
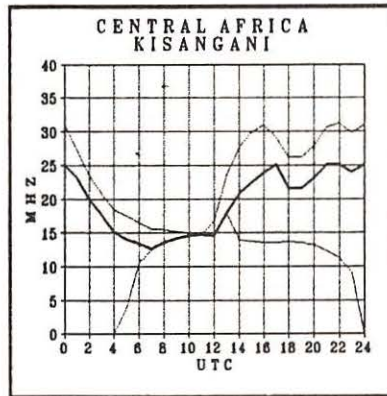
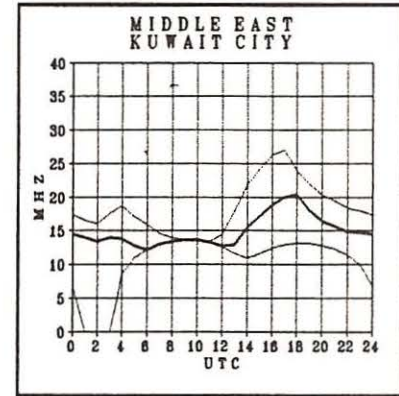
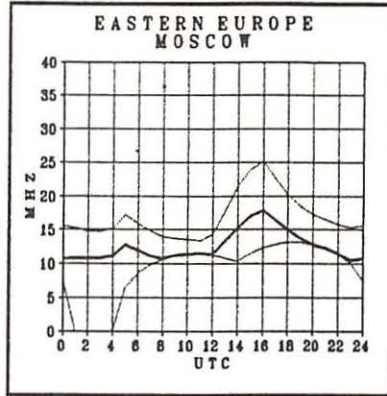
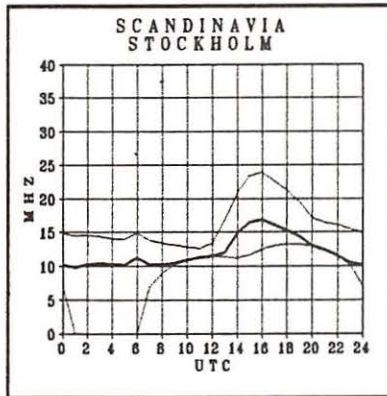
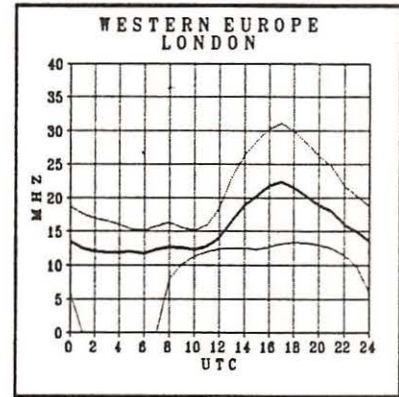
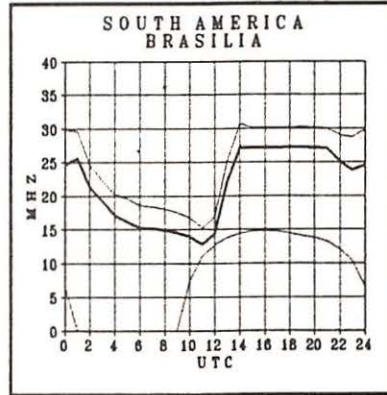
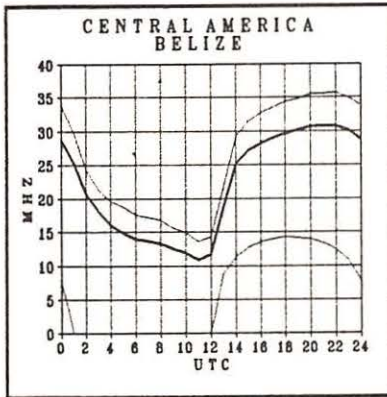
Propagation conditions: Eastern United States

How to use the propagation charts: Propagation charts can be an invaluable aid to the DXer in determining which frequencies are likely to be open at a given time. To use the propagation charts, choose those for your location. Then look for the one most closely describing the geographic location of the station you want to hear.



Propagation Conditions: Western United States

Once you've located the correct charts, look along the horizontal axis of the graph for the time you are listening. The top line of the graph shows the highest, or maximum usable frequency (MUF), the heavy middle line is the frequency for best reception, or optimum working frequency (OWF), and finally, the bottom line is the lowest usable frequency (LUF). The strongest signal will be found along the heavy middle line.



- Windsor 2139 Portable
- First Look At Sony's Improved ICF-SW77
- Reports Ready on Improved Drake R8/R8E and Japan Radio NRD-535

"All the news you need to know, plus music and entertainment from around the world is what you'll enjoy with this Windsor 9-Band Radio," coos the ad in the C.O.M.B. catalog. All for only \$34.99, including shipping.

Windsor is No Duke

Okay, you know pretty much what to expect from this sort of thing. Yet, now and then there is a Pomtrex nestled among the sorry fleet of junkers. The Pomtrex, while no gem, is at least a decent performer. Not so the Windsor.

The Windsor 2138 is a compact analog portable, made in China and powered by four "AA" cells. It covers longwave, AM and FM, plus shortwave, via bandspredding, roughly 5.83-6.25, 7.07-7.55, 9.44-9.94, 11.35-11.96, 15.1-15.56 and 17.45-18 MHz (49, 41, 31, 25, 19 and 16 meters).

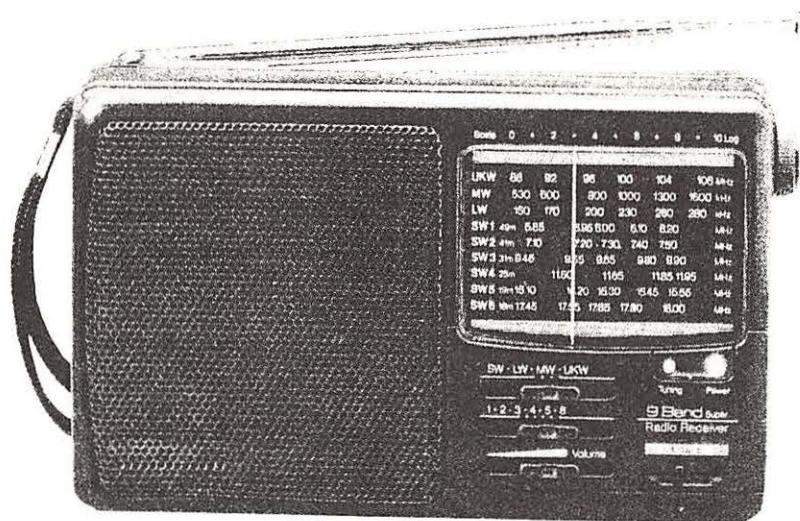
Missed altogether are 22, 13 and 11 meters; tropical and other stations below 5.1 MHz; and some juicy edge-of-band ranges such as 9.39-9.44 and 11.96-12.1 MHz. If this looks familiar, that's because many cheap Chinese portables have pretty much the same frequency coverage.

Controls and features? Just about what you'd expect: power, volume, main bandswitch, short-wave bandswitch and tuning knob—nothing more. There's also an earpiece socket and another for an outboard 6 VDC power supply.

There's also a cloth wrist strap and a telescopic antenna that swivels, but doesn't rotate.

Awful Audio

Performance? Awful, nearly as bad as we've encountered in testing over 200 models. No, it's not as bad as one model we tried about ten years



ago that had no speaker and no antenna. (You had to place the radio near an appliance in the hopes the appliance would act as an antenna and bring in a signal or two.) But it's close.

It's not the Windsor's sensitivity, which is mediocre. Nor is it the image rejection, which is dreadful. Or selectivity, if you can call it that. Rather, it's a front runner for the "Insufferable Audio Award" from the Société de Sade. Distorted, tinny—just awful! Suffering through five minutes with this turkey on any band should qualify you for the lead role in *"I, the Mentally Ill-Two."*

There Oughta Be A Law

What's worse is that in the world band radio industry this sort of thing is allowed to exist. Go out and buy a car, VCR, TV—nearly any appliance—and you'll find virtually all models meet a certain reasonable minimum level of performance. With world band radio, it's a craps shoot

unless you research the subject beforehand.

Few understand world band radio, which is an open invitation to all manner of schlock artistry. Junker world band portables are offered to the general public at irresistibly low prices, catering to people who have read about the growth of shortwave listening.

These radios are bought not because people are interested in this or that particular model—it may be the only radio of its kind they've ever seen—but because of the concept: news and perspectives from around the world, music not otherwise available.

As they've bought the concept, not the radio, when the radio fails to perform decently *the consumer faults the concept*, not the radio. They're lost forever to shortwave listening.

We're not talking thousands or even tens of thousands of people here. In the United States alone, over half a million of these junkers are sold every year! Some listeners persist, but most are lost forever to the medium. Their radios become AM/FM receivers in the kitchen.

Fight Back!

Remember the phrase in the movie, "We're mad as hell and we're not going to take it any more?"

Do it—use your voice, tickle the keys! Tip off friends, acquaintances and others you can reach to let them know that, yes, shortwave is beyond compare for news, perspectives and world class musical entertainment. But no, you can't just grab the first thing that pops up in a catchall catalog...and you have to expect to pay between \$100-200 for satisfactory results.

As an *MT* reader you know which models to recommend, or you can refer them to the Buyer's Guide in the current edition of *Passport to World Band Radio*, often found in libraries.

First Looks: Sony Re-introduces the ICF-SW77

As we reported in *MT* recently, Sony took its new \$624.95 ICF-SW77 off the market because of various problem—chief among them mediocre sensitivity to weak signals.

Improvements were implemented by Sony's engineers exceptionally quickly, so we checked out a pre-production sample to see how well the improvements were carried out. That revised version is now scheduled to be back on the market by late February or early March.

Better Sensitivity to Weak Signals, Hiss Gone

We've just begun testing the new version—we expect to have a complete account in *MT* next month or thereabouts—but we can already report that the sensitivity problem has been well and truly cleared up. This was done, first, by increasing the voltage the batteries or outboard power transformer sends to the radio's circuitry. At the same time, shielding was added to the sub VCO and first oscillator.

Second, the relatively short antenna was lengthened by adding an element. That last element helps, to be sure, but is thin and prone to being bent.

An additional problem with the original version, hiss through the headphones/speaker even with the radio turned off, has also been cleared up.

Reported Software Problem Does Not Materialize

A reported software problem has been widely discussed in the media. According to these reports, only certain samples of the original version were affected.

Sony of America's marketing management and world band engineer alike indicate they are unaware of any software problem with the '77. Nor has any software problem materialized thus far during our tests of either the original or new versions. A software "fix" thus does not appear to be on Sony's list of problems to be cleared up on the '77.

Given that the problem reportedly appeared on only a small number of units, one could speculate that it was due to QC when the initial units were manufactured.

"Chuffing" Continues

However, one problem from the original version remains: loud "chuffing"—pop-popping—when the tuning knob is used. Reaction to chuffing varies considerably from person to person. Of the four *Passport* panelists that have tried the unit thus far, two consider it annoying but acceptable; one isn't sure whether he could buy a set that chuffs to that degree; and the fourth considers the problem to be so severe that he wouldn't purchase the radio because of it. Best bet is to listen for yourself before making an irrevocable decision to keep the radio.

Reports Ready on Improved Drake R8/R8E & JRC NRD-535

For months, *Passport to World Band Radio* has been swamped with requests asking when the RDI White Papers, including lab tests, on the Drake R8/R8E and Japan Radio NRD-535/NRD-535D would be ready.

As the original versions of both models were covered in *Passport/92* and *MT*, it was decided not to issue the minutely detailed RDI White Papers until the manufacturers had finished making a variety of useful improvements. The last of these was implemented in January of this year, so the Drake R8/R8E report is now out and the Japan Radio NRD-535/535D report will be available in March.



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The Tone/Code Finder is composed of a high speed display unit mounted to a scanning receiver. Its purpose is to instantly find and display all CTCSS and DIGITAL codes, including split channel and inverted codes.

On board memory retains all hit and time information which is then transferred to a printer via a RS 232 port upon command. Time is stored in seconds and hits in units. In the event of power loss, the FINDER will maintain memory for up to three weeks.

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PASSPORT'S "RDI White Paper" equipment reports contain virtually everything found during IBS' exhaustive tests of premium receivers and antennas. These reports are available in the U.S. from Universal Shortwave, EEB and DX Radio Supply; in Canada from PIF Books by Mail, Box 888, Hawkesbury, Ontario K6A 3E1; in the United Kingdom from Lowe Electronics Limited, Chesterfield Road, Matlock, Derbyshire DE4 5LE, England; and in Japan from IBS-Japan, 5-31-6 Tamanawa, Kamakura 247. For a complete list, please send a self-addressed stamped envelope to RDI White Papers, Box 300M, Penn's Park PA 18943 USA.

AIE Tone/Code Finder

With channel crowding becoming more and more concentrated in the VHF and UHF spectrum, co-channel users are having to resort to finding methods to sort themselves out. Squelch encoding is the most common.

Often a single sub-audible tone (typically below 250 Hz) is used to activate the squelch circuit; only those receivers with this Continuous Tone Coded Squelch System (CTCSS) will respond, even if other signals without that transmitted tone are present.

CTCSS is also generically called "PL" after the "Private Line" trademark used by Motorola, a pioneer in this system. Other forms of squelch encoding, including digital, are used as well.

At the present time only one scanner, Uniden's BC760XLT (and BC950XLT clone), is capable of squelch decoding. An optional decoder allows the user to select a particular sub-audible tone to activate the receiver's squelch circuit, preventing the reception of other users on the same frequency.

This technique also allows tracking of some (but not all) 800 MHz trunked transmissions which hop from channel to channel between transmissions and share a common subaudible tone. It does not work on cellular telephone hand-offs from frequency to frequency and cell to cell.

But the BC760XLT can't tell you what the sender's tone frequency is; you must know that beforehand and set the squelch to respond to that tone if it is present.

So Who Needs It?

The knowledge of what tone or digital encoding signal is being used by which licensee is of paramount importance to two-way service and installation shops. Expensive service monitors (\$6000 and up!) have this analytical capability, but wouldn't it be nice if such test equipment were more affordable?

Automated Industrial Electronics Corporation has such an instrument (141 Granite St., PO Box 70, Batesburg, SC 29006; phone 803-532-9256; FAX 803-9256-9258). Their model TCF-3 Tone/Code Finder sells for \$299.95 (including installation if you buy your scanner from AIE); a memory is \$50 additional and a real-time clock (memory required) is another \$40. AIE will install the Tone/Code Finder in your scanner or two-way radio for an additional \$30.

The TCF-3 is attached internally to the audio circuit of any scanner or two-way radio, and is often used to monitor community repeaters or to find out how many times a particular channel has been used—in other words, an air-time monitor.

The Tone/Code Finder requires 12 VDC at 180 mA to run it, available either from an external wall adaptor (optional) or from the host receiver. It measures approximately 6-1/4"W x 1-5/8"H x 7-3/8"D and weighs just over 1 pound. The optional memory includes a backup battery good for at least three weeks without external power.

The instruction manual which accompanies the TCF-3 provides illustrated instructions for attaching the unit to a BC760/950XLT or PRO2004/5/6. A full schematic and parts list are printed. The installation procedure should not be attempted by anyone unfamiliar with electronic circuitry and may void the scanner's warranty.

For the BC760XLT owner, the TCF-3 is a handy way of finding out what squelch tones are used on which channels without having to ask.

The Particulars

The TCF-3 is housed in a BC760XLT wrap-around enclosure making it cosmetically identical to a host Bearcat. We tested our TCF-3 hooked to a Realistic PRO2006 because of its wider frequency capability and 400 memory channels.

Three large, brilliant, red LEDs call out the readings, up to three places, the closest whole tone frequency. For example, an actual 151.6 Hz tone would be displayed as 151, while 97.4 Hz would be shown as 97. Digital squelch control signals are similarly displayed.

An optional real-time clock and memory permit autologging and printout capability (a 9-pin DB connector is provided), revealing date and time of transmission, total transmission time, frequency of the squelch control signal and the number of times a particular channel was activated.

Up to 991 listings may be committed to memory; an optional RAM is available to extend this capability to 2014.

In our tests we found the TCF-3 to be sensitive and reliable, providing sure-fire readout even on weak signals. Construction is professional. For those users who require analysis of squelch tones and digital squelch codes, the AIE Tone Finder is affordable and dependable.

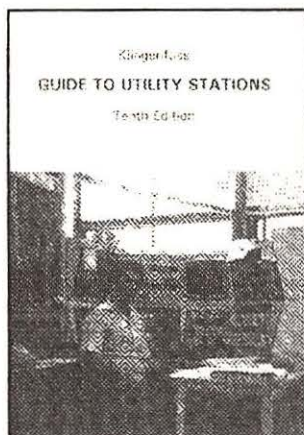


The AIE Tone/Code Finder is available in a number of models for a variety of applications. The TF-2 atop a Uniden scanner is shown here.

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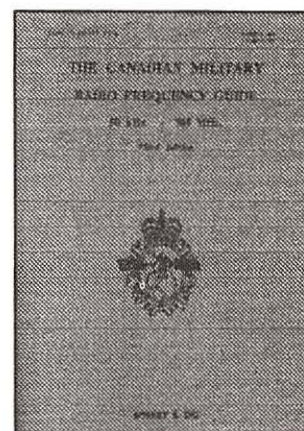
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A Simple Shortwave DX Antenna

Simple antennas that cover a broad frequency range are rare. A single dipole with untuned feeders will provide reception over a wide range, but the efficiency suffers at frequencies which are well removed from the resonant frequency of the antenna. This is because the standing-wave ratio (SWR) becomes very high outside the band for which the antenna is cut. High SWR indicates that the feed line is not matched to the antenna, and maximum power transfer can occur only when two unlike impedances are matched.

Some SWLs and amateurs have solved this problem by erecting two or more dipole antennas in a fanned configuration between two support structures. A single 50- or 75-ohm coaxial feed line is used, and the feed points of all of the dipoles are connected in parallel to allow using a single feeder cable. Although this scheme works quite well, it requires a lot of wire and effort. Not only is this type of antenna cumbersome, it provides horizontal polarization and often exhibits a bidirectional response (figure eight pattern) which may favor only two directions. DX reception with simple antennas is usually best when a vertically polarized antenna is used to yield a low radiation angle (best for DX). The SWL often prefers to use an omnidirectional type of antenna for best all-round HF band monitoring. This article describes such an antenna.

A Wide-Band Vertical System

Figure 1A illustrates an array of vertical (essentially vertical, that is) 1/4-wavelength wires that can be erected easily between two supporting trees or poles. In fact, the lower support point can be your garage, garden shed or house. The feed ends of the wires are joined and soldered to permit using a single 50-ohm coaxial feed line, as shown at B of Figure 1.

Although each wire is not perfectly vertical, the sloping wires will exhibit vertical polarization, and this is excellent for DX reception. The principle is the same as for inverted-V dipoles that have legs with a sharp slope angle (90 degree enclosed angle at the feed point). These dipoles exhibit vertical polarization and are omnidirectional in response.

Elements L1 through L4 in Figure 1 are one-quarter wavelength, as determined by the formula listed on the diagram. Therefore, if you desire a 10-MHz wire it will be 23 feet and 5 inches long.

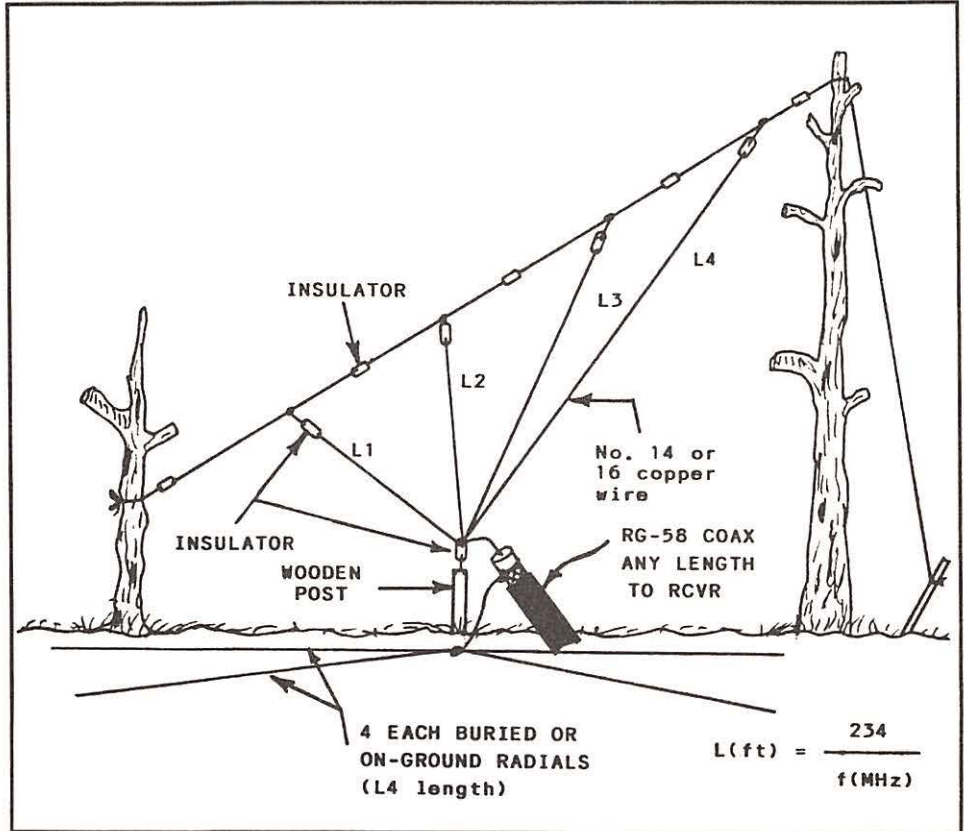


Figure 1A: An array of 1/4-wavelength vertical wires may be erected as shown to provide an effective DX antenna. Ground-wave signals (line of sight for the most part) will be much louder than when using a horizontal wire.

Each wire is cut for a favored part of the HF band. The bandwidth of each wire will be sufficient for good coverage of the chosen slice of the HF spectrum. In-between frequencies that are not included in the antenna design will be accommodated sufficiently to permit good reception. You may use as many wires as you wish to cover your pet monitoring frequencies. On the other hand, you may want only two wires in your system. The feed method remains the same, irrespective of the number of wire elements used.

The Ground System

Since each element in Figure 1 is effectively one half of a dipole, some thought must be given to the missing half of the antenna. In this situation we must rely upon what is called the "image half" of the antenna. The image portion of the antenna occurs in the ground below the antenna. Although it exists electrically and is invisible, it is there.

In order for the image to exist we must provide a ground screen or radial system. Ideally, the radials would be cut to the same length as the vertical wire. But, since we have several wires we can ensure good performance by making the radial wires the same length as the longest element (L4). We can cheat a little, if necessary, and make the radials the same length as L3, with little difference in their effectiveness.

Improved overall performance will result if you use several radial wires (the more the better). Some systems use as many as 125 wires. However, for our purposes we can expect good performance with four wires.

The wires can be laid on the ground or buried. A lawn-edging tool is handy for cutting slits in the lawn. The radial wires are stuffed into the slits and the trenches closed by stepping on them. The lawn will "heal" in a week or two if it is watered frequently. Burying the wires doesn't create an eyesore in your yard, and the moderate exercise will be good for you!

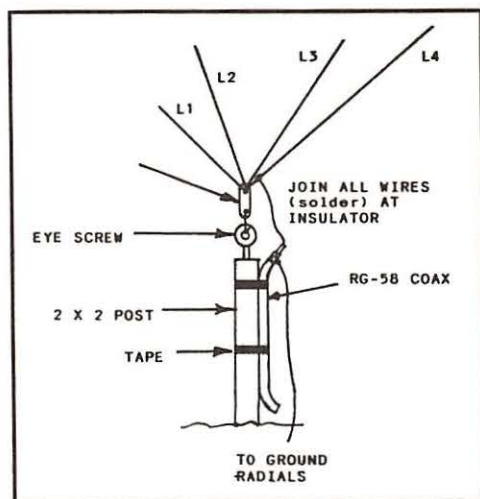


Figure 1B:
A close-up view of the antenna feed point. Construction details are provided in the text.

The radial wires can be any convenient gauge. The heavier the wire the longer it will last. Soil acid and alkalinity will corrode bare wire over time. Insulated wire (vinyl covering) will last for years. Avoid using bare aluminum wire. It may not last a year in acid soil.

I have had good luck using No. 18 plastic-covered speaker wire for both the antenna elements and radials. This wire is inexpensive and can be pulled apart easily to provide two lengths of wire for the price of one. The plastic covering seems to hold up well in the presence of air pollution and UV rays. I have had some of this wire in my antenna farm for more than five years, and it still looks good.

Construction Notes

Figure 1B shows feed-point details. A screw eye is installed at the top end of a short 2 X 2-inch post. Treated lumber is best for this post in order to prevent rot. A piece of iron pipe may be substituted for the post. A pipe cap can be screwed to the upper end and this will permit the addition of an eye bolt on the cap. All four antenna wires converge at the insulator which attaches to the eye screw. Solder these wires at their common point. Solder the center conductor of the coax to this point also. The shield braid of the coax is soldered to the junction of the four radial wires. Seal the open end of the coaxial cable with epoxy glue or bathtub calk. This will prevent moisture and dirt from migrating down the inside of the cable.

Insulators are used in the guy line between the two supports, as shown at A of Figure 1. This is done to prevent the guy wire from interacting with L1 through L4. Nylon rope may be substituted for the wire support line to eliminate the need for those extra insulators. Avoid using polypropylene clothesline rope which deteriorates rapidly when exposed to sunlight and air pollutants.

You can make your own inexpensive insulators by boiling sections of wooden dowel rod in canning wax (paraffin). The wax impregnates the wood and prevents moisture from entering the insulator. Boil the wood for 30 minutes.

In Conclusion

I have used this antenna a number of times for transmitting and receiving at my amateur station. It has been effective for worldwide communication, but it suffers the usual ills associated with vertical antennas — noise pickup. Man-made noise is essentially vertically polarized, and this antenna is responsive to the noise because it is of the same polarity. It is important, therefore, that you locate it as far from power and phone lines as is practicable. It should be situated well away from your house (internal wiring) for the same reason.

If you are using a single end-fed antenna wire for short-wave reception now, you will be delighted to note the improvement when you switch to the array of vertical wires shown in Figure 1. Foreign stations, especially, should be much louder.



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Interface Your PRO-2004/5/6 to A Computer

"As different as night and day," we often say when describing the magnitude of dissimilarity between two things. Although night and day are diametrically opposed, neither one is "bad"—they are simply different. Keep that in mind for the rest of this column.

Recent issues of *Monitoring Times* sported ads for a Computer Aided Scanning system by Datametrics, Inc. and the Model SC-2 interface kit from RW Systems. Curiosity and chronic "keyboard knuckle syndrome" pushed me to try both. Talk about night and day! The two are as dissimilar as can be and still classify under the same subject heading. Neither wins a hands-down competition over the other because they are so different! The "main event" of these two interfaces is that each will download (program) 400 frequencies into a PRO-2006 in 8-9 minutes, but that's where any similarity ends.

The Datametrics Approach

Datametrics' Computer Aided Scanning system consists of a small circuit board, a short ribbon cable with a DB-25 connector, and two clip leads easily installed by the most confirmed novice in a few minutes. The printed circuit

board plugs into an existing connector in the scanner and then screws down with a supplied standoff to an existing tapped hole. The two clip leads go to readily identifiable spots on the scanner's main board. The flat ribbon cable goes straight out the back of the scanner, over the top edge of the metal rear panel, and the plastic case slips down for a tight but unmodified fit!

That's it; no wires to cut; no holes to drill; no soldering; no fuss, muss or mess! The work is completed by connecting a 25-conductor cable (straight through) from the interface's ribbon cable/connector to a parallel printer port of an IBM/compatible PC-XT or AT computer.

The hard part of the Computer Aided Scanning system by Datametrics Inc. is setting up and operating the software. This is by no means beyond the capability of the average scannist; it's just that the hardware installation is so easy by contrast.

Datametrics' program is a sight to behold and a pleasure to operate after it's been set up. In fact, the software package is a look-alike of Datametrics' better-known control program for the ICOM R-71A and R-7000 (see p. 104 for review).

Let's just say that driving a scanner from the computer with Datametrics' system is kind of like flying an airplane! Almost everything that can be done from the keyboard of the scanner can be done with greater visual impact at the computer. Charts, graphs and tables of the results of a scanning session are available at the touch of a key or two. See Figure 1 for a typical operating screen display.

Datametrics presently supports the Computer Aided Scanning system ONLY for the PRO-2006, but it should work with the PRO-2005 as well, with no deviation from the installation and operation guidelines for the PRO-2006. It should also work in the PRO-2004 with the disclaimer that the PRO-2004 is mechanically dissimilar to the virtual twins, PRO-2005/6. There is no connector for the Interface PCB, nor a "perfect" installation location like in the PRO-2005/6, but if you're willing to make soldered hardware connections from the Interface PCB to the 13 keyboard pins in the PRO-2004, there is no technical reason why it can't work. By next issue or two, I hope to have tried it on the PRO-2004 and 2005 and have some specific comments. In the interim, I will report any results to Datametrics so that they can consider supporting the PRO-2004 and 2005.

Other drawbacks? They are few. Considering the incredible ease of installation and completeness of the control program, any perceived drawbacks mostly result from compromises made for the sake of simplicity of installation/operation. For example, the software takes control of and does the driving of most of the scanner's functions instead of letting the scanner run by itself. This means that the scanner is completely controlled by the software with a resultant compromise on speed of the Scan & Search functions. If you are accustomed to warp speeds, then the interface's one or two ch/sec will seem like a snail's pace at first.

Slow speed diminishes in importance when other valuable assets are considered, one example of which is the very accurate and detailed records that can be logged and stored by the control software. Reduced speed is also offset by the ability to observe the scanner in action as the control program performs traffic density studies, logs active frequency and much more than space allows to rant and rave about here. By the way, the Datametrics interface does not alter or hamper normal operation of the scanner in any manner.

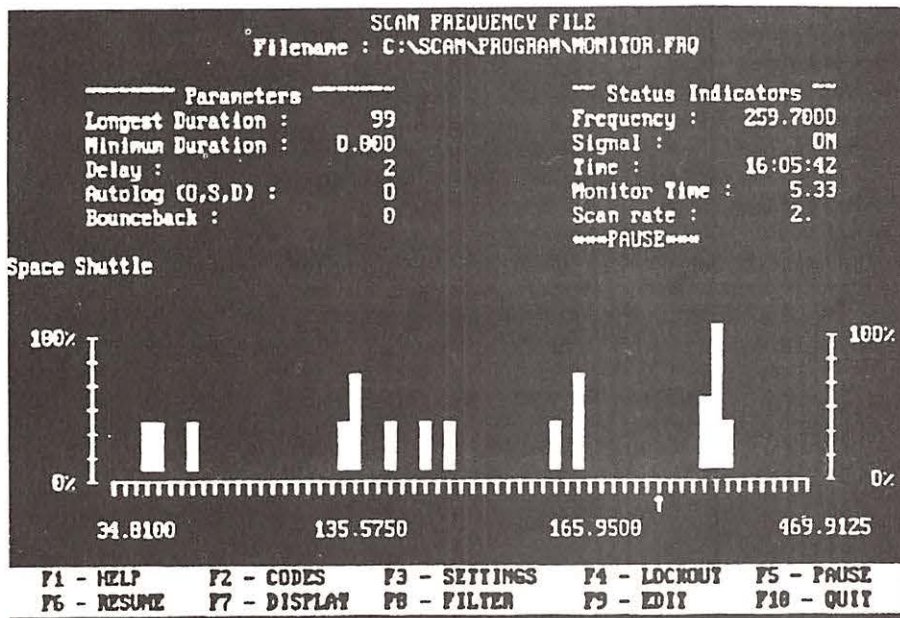


Figure 1: Datametrics Frequency Scan Screen

It can still be operated manually in every area as factory specified with no ill effects!

If this overview of Datametrics Computer Aided Scanning system isn't as detailed as you would like, see the sidebar for how to get more info. Also ask about their 30-day return privileges if you'd like to see for yourself, risk-free, what Computer Aided Scanning can do for you.

Control In a Kit: RW Systems

Enter the RW Systems' SC-2 Interface Kit at the other extreme! The SC-2 is available only as a kit of parts, anything but a snap to assemble and install. Supplied are a professionally designed, etched and silk-screened PCB, seven integrated circuits and a couple dozen resistors, capacitors and diodes. The hobbyist must supply the recommended IC sockets and all other installation materials & hardware, including connectors, sockets, hookup wiring, serial cable, nuts, bolts, etc.

Sounds grim? It isn't really, but you should count on 1-2 hours to assemble the board; another 2-4 hours to install the SC-2 in the scanner and another hour or so to make up the necessary serial cable for between the interface and the computer. You can buy the cable ready-made if you don't want to bother with making one. In stark contrast with Datametrics' interface, assembly & installation of the SC-2 are the hard parts. The rest is a piece of cake.

The RW Systems SC-2 interface requires virtually nothing in the way of sophisticated software, hardware or knowledge to operate. It works with most any computer that has a 9600 baud serial communications port or card with the basic RS-232 functions of Tx/D, Rx/D, DSR, CTS and ground. A modem is NOT required but you will need a simple garden variety telecommunications or terminal program that can send and receive ASCII files. Any data base, word processor or other ASCII file of frequencies can be used to program the scanner. A little manipulation of those files is necessary before you can send them to your scanner but nothing inordinately complicated.

In addition to being able to quickly program the scanner from a data file, the RW Systems Interface offers two other modes of operation: (1) poll and read the contents of the scanner's memory banks and display the results on the computer screen. This record is transferable to a data base or word processor file. (2) The RW Systems Interface can be easily set to read and log active frequencies from the SCAN and SEARCH modes. These frequencies can be reviewed on the computer screen and stored in a data file. The RW Systems Interface also has a limited ability to manually step through the scanner's memory channels, similar to pressing

Source Data for Interface Hardware & Software

Datametrics, Inc.
2575 South Bayshore Dr., Ste. 8A
Coconut Grove, FL 33133

RW Systems
P.O. Box 910043
Escondido, CA 92191

Other Scanner Interface Information:

"World Scanner Report"
P.O. Box 262478
San Diego, CA 92196-2478

When contacting the above companies, please mention *Monitoring Times* and this column as your source.

the MANUAL key. RW Systems offers a one-year warranty on components and operation of the SC-2.

In contrast to Datametrics' interface, the SC-2 does not control the scanner in any manner other than in the PROGRAM mode where the two are much alike. Part of the SC-2 connects to the scanner's brain (CPU) so that it can read and send back to the computer what the scanner is doing. This means that scanner operations are normal with no side effects.

Another contrast with the Datametrics unit is that the RW Systems Interface presents only raw data to the computer screen; it's up to you to decide what to do with it. There are no frills, bells and whistles here, but for sheer utility, the SC-2 shines bright and clear for the PRO-2004, PRO-2005 and PRO-2006. It might be adaptable to work with other scanners, too, but you'll be on your own there.

In summary, I am hard pressed to select a favorite of the two. Either one performs what in my opinion is the most important task—that of effortlessly programming the scanner! Beyond that, each has advantages over the other. If one doesn't appeal to you, the other might! The Year of the Interface is here and scanning is about to take a quantum leap. Other scanner/computer interfaces are coming to market and I will tell you about them as they surface.



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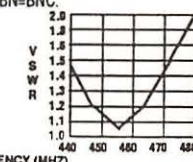
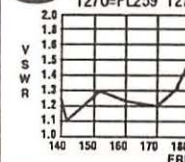
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What 's the Best Antenna? A Beginner's Guide

Just what is the very best antenna ever devised? Well, it may surprise you, but there's no good answer to that question. Because we have so many different types of antennas which have different things to offer the monitoring enthusiast, the question should really be re-stated to read: "What is the best antenna for my particular application?"

In fact, there are so many good antenna designs available that, even then, there may be several different antennas which can each provide a good solution to your particular needs.

So Let's Take a Tour

To acquaint you with what I mean, let's take a short tour through the world of antennas and talk about some of the different types of antennas available, and the characteristics which make them a good choice in various communication situations. Fig. 1 shows examples of some of the more common types.

First let's discuss general-use antennas. A good choice of antenna for all-around use, particularly on the UHF and VHF bands, is often a non-directional antenna such as the quarterwave vertical ground plane antenna. This antenna receives equally well from all directions of the compass, and has sufficient gain to perform satisfactorily in most cases.

But let's say that you want a non-directional antenna that will receive even the weaker, distant

stations. In this case you still might well choose another vertical antenna, because vertical antennas lend themselves to non-directional coverage. But for the weaker signals you need more gain than the quarterwave gives.

In this case you might consider other verticals such as the halfwave, the 5/8 wave, and the coaxial collinear. The point here is that if you need to get more weak-signal performance from a nondirectional antenna than a quarterwave vertical will give you, you can move up to longer antennas which give more gain as the length increases.

But What About the HF, MF, and LF Bands?

If you've seen vertical antennas built for the various bands, you are now probably thinking that verticals on VHF and UHF are practical, but on HF, MF, and the longer waves a vertical antenna would be so tall that it becomes an impractical antenna to deal with. For instance, although a quarterwave at 21.45 MHz (13 meters) is only 11 feet tall, at 7.1 MHz (41 meters) it is something like 33 feet tall, and at 2.3 MHz (120 meters) the required height would increase to over 100 feet!

Most of us can't manage antennas that tall, and so on the HF bands and lower frequencies we usually go for some variant of the horizontal

halfwave dipole when we want all around coverage.

Now the halfwave dipole doesn't actually have a nondirectional radiation and reception pattern, but the nulls in its pattern are so sharp that, for most practical purposes, it is close to nondirectional. Another good choice here is the horizontal random length wire antenna which, when kept to a length of a half wavelength or less, is also close to nondirectional.

Of course there are other solutions to a nondirectional monitoring antenna on the shortwave bands. Among these is the active antenna, which is sometimes a good solution to the need for a small high performance monitoring antenna. But if there are strong local signals in your area you may find that your active antenna overloads and causes intermodulation problems.

For Directional Monitoring

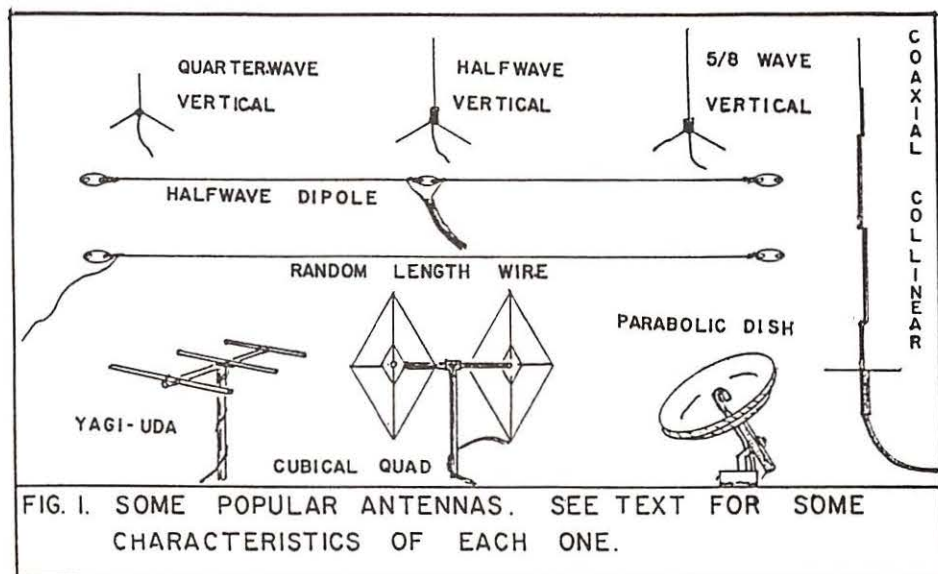
Sometimes, as was indicated earlier, our need is not necessarily to receive from all directions as we tune around the dial, but to monitor a specific station on specific frequency. In this case we will want an antenna which will emphasize reception from the specific direction of the signal which we want to hear, and also reduce possible interference to the signal by attenuating signals which are arriving from any other direction than that of the signal which we want to hear.

For this type of application on the VHF and shortwave bands, beam antennas such as the Yagi-Uda, cubical quad, and log-periodic types are popular. On the UHF band the Yagi-Uda, log-periodic, corner reflector, and parabolic dish antennas are often used to fill the need for a good directional beam antenna.

Potpourri

Sometimes other considerations will come into play in selecting an antenna. For instance, often we want to be able to monitor over a very wide range of frequencies rather than just on a single band. In this case wide-band antennas such as the log-periodic, which is a directional beam, and the discone, which is nondirectional, would be good choices.

Another way to cover more than a single band is to utilize a "multiband" antenna. This is an antenna which is designed to operate on more than one, and sometimes several bands. The multiband antenna doesn't have the wide, con-



tinuous coverage of the wideband antennas. Although it covers multiple bands, it is not designed to cover the portions of the spectrum between those bands. Examples of multiband antennas are the trap dipole, which is close to nondirectional, and the multi-element, multi-band beam, which is directional.

At other times the mobility or portability of an antenna is of primary importance, such as when the antenna is to be used on a vehicle or even carried by a person walking. Suppose you want to set up a portable monitoring post in your motel room when you are travelling, or at your campsite. You'll need an antenna which can be carried about easily and which can be set up and taken down quickly and easily. There are a number of quick-and-easy-up antennas available for these applications, most of them employing some variant of the halfwave dipole or the quarterwave groundplane.

In future "Antenna Topics" columns I'll be covering most or all of the various types of antennas that I've mentioned in this column, plus some others that we think that you will find interesting and useful. In the meantime, if you are turned-on to antennas and want to learn more about them, good sources to start thumbing through are the ARRL *Antenna Book*, Bill Orr's *Antenna Handbook* (Howard W. Sams, Publisher), and Joe Carr's *Practical Antenna Handbook* (published by Tab).

This Antenna Can Dish it Out!

During last summer's California travels, Harry and Rachel Baughn got a look at a rather well-known dish antenna located near the Stanford University campus in Palo Alto, California. The antenna, located high on a hill near a large freeway, is an imposingly obvious landmark. Due to its gigantic proportions, it is known to the locals in that area as the "Big Dish."

This antenna, which appears to be perhaps 50 feet in diameter, gained popular notoriety a number of years back when it was used to communicate with a wayward space satellite. The satellite had rotated such that its highly directional antenna was facing away from earth, making it impossible for the satellite to receive sufficient signal strength from its command station on earth for the command station to control the satellite.

At this point, the tremendous gain of the Big Dish was called upon, and a beam of radio energy at the proper frequency was aimed at the satellite encoded with commands to get that incorrectly oriented antenna pointed back toward earth. With the high gain level and precise

RADIO RIDDLES

Last Month

After admitting last month that I won't ever be able to write about how you can build yourself a unipole antenna (which exists only in theory) I bravely said: "Who cares? We can still write about how you can build your own monopole antenna, which sounds like the same thing. Or does it? Or can we?"

Well, does it? Can we? The answers are yes and yes. A monopole antenna is variously defined by different radio dictionaries, but, in applied antenna work, this antenna is essentially a stub element, such as a quarterwave, above a groundplane. Thus our old friend the quarterwave groundplane antenna is a monopole antenna. The sleeve dipole is also sometimes called a monopole antenna. So yes we can, and have more than once in the past, written about building your own monopole antenna.

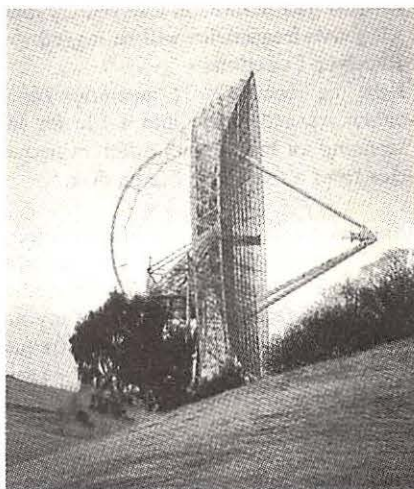
This Month

Quite a while ago we ran a contest here in *Monitoring Times* to find the what were the world's largest and smallest antennas. How small do you suppose was the smallest we found?

We'll have the answer to that, and much more, in your next issue of *Monitoring Times*. 'Til then, Peace, DX, and 73.

directivity of the Big Dish, it was possible to send a sufficient signal up to the satellite's incorrectly oriented antenna to reorient the satellite and return command of that satellite to its ground control station!

Check out the accompanying photograph for a look at this "space hero" among antennas!



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TopGun and Wild Weasels

Spectrum Analysis and Datametrics' Communications Manager 4.02

Let's start with the TOPGUN stuff. It's the job of the guy behind the pilot of a fighter aircraft to locate and identify any target or threat, often using radar. We all know the principles: a strong signal is transmitted and the time it takes to receive back its weak reflected echo gives target range information. Hunting fighter aircraft use it. Defensive surface-to-air missile sites use it. Even ground forces tip their hand with their battlefield transmissions.

Fifty years ago the scientists and engineers had a brainstorm: Don't try listening for a weak echo from your own radar, go for the strong primary signal of the other guy's radar. But in order to do this, either the enemy's frequencies must be known exactly or you need a fast-tuning, wide-band scanning receiver that can cover the frequency spectrum—the spectrum analyzer. (A similar test instrument is used for checking the purity of an emitter's signal.)

It's the "high-end" application of spectrum analyzers that makes use of the "Wild Weasel," a modified fighter aircraft whose mission is to get the SAMs to turn on their radar by acting as bait. Once the radar is turned on (detected by the pilot's spectrum analyzer), radar homing missiles are tuned to that frequency and fired. The missile tracks the beam to its source and silences it (assuming the Weasel is not blown out of the sky first). A high tech game of chicken.

During the Cold War we intruded each other's airspace and had radio ferrets which listened with frequency spectrum analyzers to the radio/radar activity that responded to our intrusion. Whether in ferret aircraft, ships or surveillance satellites, the military is listening to the electromagnetic spectrum from dc to light. The frequency of each signal, its type, and when it is on or off can tell the military a lot. Wide band, fast scanning receivers (thousands of channels per second) connected to super-powerful high-speed computers for receiver control, signal cataloging and analysis is the military counterpart to your monitoring desk. But how can the military use of spectrum analyzers be applied to our monitoring hobby?

Although frequency lists for shortwave, VHF and UHF are a must for the serious listener, these cover only the known frequencies. Finding which scanner frequencies are currently active in your local area or finding ones not in the published lists can be informative and exciting. For shortwave broadcast listeners, knowing which frequencies are strongest and clearest under specific propagation and interference conditions ensures that you don't miss a word. And for the serious shortwave utilities monitor or scanner buff—the wild weasels of our hobby—the spectrum analyzer's use is self-explanatory.

Communications Manager 4.02

Datametrics' Communications Manager (called CM in this review) is aimed at just this type of listening. The current version, 4.02, is available for the ICOM R-71, ICOM R-7000 and ICOM R-9000. This review was done using the R-71.

The comprehensive, 3-ring binder manual does a good job in instructing the operator in all the functions of CM. Connection of the included interface is simple via either serial port 1 or 2. The other side of the interface is two plugs; one is connected to the UX-14 serial port in the R-71 back panel and the other to the signal active relay jack, also on the back of the R-71. With these connections made you are ready to run the software file Scan.exe.

The program must be "setup" to your computer and receiving needs. For example, if want to listen as you scan you'll want to linger on the frequency a few seconds before moving to another. This time, along with the delay time if a signal is detected, can be set by the operator from the Program Configuration Setting menu. Alternatively, if you're hunting through a spectrum for signal activity, the linger time can be set to 0 seconds, giving you a higher scanning speed. These powerful features give the user the ability to use CM for different types of listening.

The main menu also presents the operator with the following three primary functions:

1. **Scan Frequency File** - Scan frequencies from previously stored lists. These lists can be manually entered or can be automatically captured by the program during a range scan.
2. **Range Scan** - Scan a user defined upper and lower range of frequencies. The tuning increment and mode are also user defined in a secondary menu. All active frequencies will be logged.
3. **Receiver Functions** - Here the receiver's 32 memories can be either scanned, made into a file for later scanning, or loaded with different frequencies from a frequency file on disk.

The first two functions are the most interesting. CM comes with a frequency file called MONITOR for which the manual gives credit to Bob Grove. Too bad Bob didn't know of any other mode than AM. He did, of course, but all frequencies in the CM file are in the AM mode—a small mistake which will give the user good practice in editing files!

Option choices, presented in clear and simple lists, are made by highlighting the option with the

up/down arrow keys and pressing enter. CM has one of the most user-friendly screens I have seen; very little reference back to the manual is required.

When using the scan frequency function, a file from disk or memory must first be chosen. Then the screen becomes a frequency spectrum graph with the frequencies displayed along the bottom of the screen and the percentage of your linger time that a signal has appeared on that frequency (0 to 100%) displayed along the vertical side. More useful information is displayed on the top of the graph and all operator choices are now made using the function keys on the keyboard. At the very bottom of the screen the action of each function key is shown—very simple and useful.

As the program scans, it uses the squelch break to indicate the presence of a signal. For the R-7000 this is a good method. However, for the R-71 in the shortwave spectrum, with its varying man-made noise floors and signal strengths and propagation fades, this is only reliable for strong signals. For strong shortwave broadcast stations the scan works quite well. The setting of the squelch control is critical for proper operation and is dependent on the conditions and type of signals you are interested in finding.

An arrow moves along the bottom of the graph indicating the current frequency, and a vertical bar appears above it if a signal is detected. At each scan point you can see or modify all the information about that frequency by pushing a function key. Then CM robotically continues its scan of the list until another signal is detected.

Selective Scanning

Selective scanning based on words in the comments section of each file can be performed using the FILTER command. For example only NAVY frequencies identified in the comments sections will be scanned if the filter is set to NAVY. All the results can be presented by CM in a number of graphic or report forms.

However, the spectrum display is the most visually efficient way of seeing where the activity sits. And now for the wild weasel frequency scan function. We know from MT columns that the airlines use lots of different frequencies, dependent on weather, flight route, equipment trouble, traffic density and other variables. We also know that these frequencies are usually in the 5,6,8,11 and 13 MHz ranges. By using the Range Scan function set to these ranges, one at a time, and scanning for a ten-minute period of time, we can "see" which frequencies are active today. You now have a broadband spectrum analyzer and logger at your disposal.

The chart and list can then be filed on disk for future use and compared to published airline frequencies. Of course this can be used for more exotic hunting than airlines, but that is left to your imagination.

Overall Summary and Comments

At \$349, Communication Manager is a high-priced package. It does include a small, well-packaged interface which does not require external power, software on 5-1/4 or 3-1/2 inch disk and an excellent manual. For the first-time user the inclusion of a wiring picture (what wires go where on the computer's rear panel and on the receivers) would be very useful.

The user-controlled flexibility of the setup parameters is a feature not found in most packages and makes CM useful for many different purposes. However, in this review the program would not control the receiver until the default "Iodelay" parameter was increased by a factor of two—a very simple operation, but one which took an hour of experimenting with manual in hand to overcome.

If a communications problem such as this is encountered between the computer and the receiver, three setup parameters must be varied to customize the software to your equipment. Perhaps the importance of these parameters should be stressed to a greater degree in the early pages of the manual. On the other hand, it is due to the flexibility of these parameters that Communications Manager can be optimized for different types of listening. The authors are to be commended on their foresight.

As mentioned, for shortwave applications the setting of the squelch control is an art the operator will have to learn for any useful results. The screen displays are user friendly and of professional quality.

On a color EGA monitor the spectrum graph bars, indicating the presence of a signal at a given frequency, appear in different colors. On a monochrome display the different color bars are not easy to see, indicating that a provision for monochrome should be added.

While on the subject of displays, there is no provision for displaying decoded information, for example from a PK-232 decoder. This is the program's biggest limitation and makes it useless for monitoring of RTTY, ARQ, FEC, CW or other data transmissions. Just one or two lines at the top of the screen for decoded data input via the other serial port would make this a total monitoring environment package.

Finally, the speed of scanning is adequate, and in fact on par with other software packages. However, since finding and cataloging signals is a prime function of the software, increasing the scanning speed is one area in which Datametrics should put its future efforts.

The latest version of Communications Manager, version 4.02, is very flexible, useful,

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user-friendly and ran without a bug in sight. It's a high price for a piece of software and interface, but cheap for a spectrum analyzer. Communications Manager is available from Datametrics, Inc., 2575 South Bayshore Dr., Suite 8A, Coconut Grove, FL, 33133 at the price of \$349 for the R-7000 or R-71 (which requires UX-14) and includes a serial to TTL interface. An IBM PC with 512K memory and a serial port is required.

Footnote to the Reader:

These reviews are not meant to give exhaustive detail of all the functions of a software package, but instead highlight the basic functions. Therefore, if there are additional features you are interested in, drop me a line (enclose an SASE if you want a personal reply). If reader response indicates an interest we will re-visit software and go into advanced applications and features. Now it's time to start your mission: hunt down a spectrum of signals, identify your objectives and QSL!

Q. *I have a severe electrical noise on my shortwave receiver; how can I determine its origin? (Peter Warncke, Vallejo, CA)*

A. First tune in the noise on a battery-operated radio (even a car radio), then switch off the main circuit breaker on your electrical panel. If the noise goes away, it is coming from your home; if it persists, it is not.

To find the noise inside your home, turn the main breaker back on and switch off the individual breakers one at a time, noting which one stops the noise. Check all appliances and connections on that circuit.

To find the source outside your home, carry the portable radio toward the electrical utility pole to see if the noise increases; this would indicate trouble on the power line, possibly a "leaky" transformer, loose wiring connection, broken insulator, tree limb on the line, a bad ground wire or defective lightning arrestor.

If the problem isn't there, walk around the neighborhood to spot the source. When you find a noisy house, use diplomacy and try to isolate the source just as you did in your own home. Chances are the owner is experiencing a similar problem on TV or radio reception and will welcome the effort.

Q. *Where can I find adjustable ferrite loopsticks like the Miller 6300 plug-in coils for the older radio receivers? (Steve Fell)*

A. Look in your Yellow Pages for Electronic Parts Distributors and find one that sells Miller coils. A sales representative may be able to find you a local dealer.

Older plug-in coils may be found advertised in *Antique Radio Classified*; for a free sample call 508-371-0512 and tell them you were referred by *Monitoring Times*.

Q. *I recently left my hand-held scanner in the car during sub-zero weather; although the radio still works fine, the LCD is filled with black specks. What are they? (Peter Smith, Johnstown, NY)*

A. Unfortunately, this condition indicates disintegration of the display and cannot be repaired; the radio will have to be sent back to the factory for replacement of the LCD.

Q. *Since virtually all land mobile radio is FM mode, why do aircraft still persist in using noisier AM? (Numerous inquiries)*

A. There are several reasons; the most important was economic. The first large-scale mobilization of radio was in World War II aircraft; after the war, commercial airlines purchased enormous numbers of surplus aircraft—AM radios and all.

When later FM improvements pervaded the land mobile industry, the cost to convert aircraft communications would have been staggering. AM also permits a weak emergency transmission to be heard through a stronger, closer signal; FM's capture effect rejects the weaker signal.

Q. *Can a TV antenna be converted to a scanner antenna? (James Ashe, Weymouth, MA)*

A. Absolutely. As a matter of fact, the popular Grove Scanner Beam evolved in that manner. Choose a log periodic dipole array (LPDA), characterized by parallel elements which uniformly change in length and are interconnected by a criss-crossing wiring harness.

If you are interested in 800 MHz band monitoring, choose an LPDA with a UHF-TV section on the front. Cut the front-most VHF element (located just behind the UHF section) to 11" (5.5" each side of the boom).

Connect a string from the outer end of that (shortest) element to the outer end of the rearmost (longest) element. Cut all the remaining elements where the string crosses, creating a uniform taper from front to back of the antenna. Repeat on the other side.

Erect the antenna so that the elements point up and down (vertically; not horizontally as with TV) with the smaller end facing the desired signal. You may have to drill two new holes in the boom at right angles to the old holes to mount the U-bolt assembly.

You may use any splitters and balun transformers for scanner reception that you would have used with TV reception; just be sure they are intended for VHF/UHF (through 900 MHz) applications.

Q. *I recently heard on 7540 kHz a female voice sending five-letter groups. Are these messages decipherable? (John Budrys, Leonard, MI)*

A. You have stumbled across one of the legendary "spy numbers" stations. These are one-way transmissions sent by the diplomatic services to their insurgent agents in foreign countries. They use "one-time pads," the key for which changes daily, and they are not decipherable without the pad.

Q. *I have a number of old air-variable capacitors; is there a simple way to determine their capacitance? (Steve Fell)*

A. The easiest is with a capacitance bridge which measures the value directly. Good portable instruments may be purchased from electronic test equipment suppliers for approximately \$150.

Or, if you have a handy supply of fixed capacitors, you can connect the unknown variable and an inductance to an L/C oscillator circuit connected to a frequency counter. Set the variable to minimum and observe the frequency, then do the same with the maximum setting. Remove the variable capacitor and substitute the fixed capacitors until the same frequencies are displayed.

A spectrum analyzer or wide-coverage receiver may be used in place of the frequency counter. A similar procedure may be followed using a dip meter instead of the oscillator and frequency counter.

If you're handy with math (or a simple calculator) and you have a coil of known inductance, you don't need the fixed capacitors. The capacitance (pF) is found by dividing the number 25345 by the square of the product of the frequency (MHz) times the inductance (uH).

It is much easier to use the handy and inexpensive Lightning Calculator from the American Radio Relay League (call 203-666-1541 for information) which will do the math for you.

Q. *If I hook my frequency counter to a rooftop antenna, will this increase the range of the counter? (Daniel O. Myers, Abington, PA)*

A. Unfortunately, yes. It would then respond simultaneously to whatever combination of signals are strong enough to trigger the counter, giving you an ever-changing random pattern of meaningless numbers.

Frequency counters are very useful instruments when their limitations are understood. They purposely have poor sensitivity and small antennas so that they will respond only to the closest transmitter; otherwise they "false"—give

random readings from extraneous signal combinations.

As a general rule, frequency counters provide valid readings within a few feet of low-powered transmitters, especially in metropolitan areas where there may be many strong transmitters, and up to 100 feet or so in rural areas. There are optional (and expensive) amplified preselectors available to extend those distances.

Bob's Tips of the Month

A Homebrew Project Box

Several readers have asked how to package the popular Grove Shortwave Scanverter rather than leave it in its open circuit board configuration. Dennis Jackson of Winston Salem, North Carolina, has a suggestion.

Dennis obtained a plastic bandaid box (which he spray-painted black). He cut holes in the bottom of the box to hold a small slide switch and an extension LED from the board, and in the side to pass the connecting cables.

A nine-volt battery holder from Radio Shack was conveniently mounted on the lid. This handy technique can be used for a variety of home-brew projects

An Inexpensive Source for Tubes

With the vacuum tube era rapidly fading into history, replacement tubes for radio equipment are becoming harder to find. Several ham clubs have new and used tube reserves just for that purpose.

One of these organizations is the Idaho Amateur Radio Tube Bank, sponsored by the Idaho Society of Radio Amateurs. An SASE sent to trustee Lee Bunch, 1095 Plainview Drive, Twin Falls, Idaho 83301 will bring an inventory printout.

The tubes cost only \$2 each (\$6 for CRTs) including shipping, and are for personal replacement purposes only; they must not be resold commercially. The tube bank appreciates tube donations as well to continue their service.

Questions or tips sent to "Ask Bob", c/o MT, are printed in this column as space permits. If you desire a prompt personal reply, mail your question along with a self-addressed stamped envelope (no telephone calls, please) in care of MT.

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If your club is not listed in Club Circuit, write or call to request a form.

Club Profiles:

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Founded in 1933, the NRC offers three unique services to the AM/FM listener. "DX News Magazine," our weekly magazine, covers the AM bands thoroughly with regular features such as AM Switch, that keeps you current on AM station happenings, Domestic DX Digest columns tell what is currently being heard on the radio by you, the listener. We feature station profiles, technical articles, as well as columns on format changes, sports networks, and a MUSINGS section, where you write and tell us your views, plus much more. Send \$1 for sample issue.

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The *NRC AM Radio Log* and *NRC FM Radio Log* are but two of a wide selection of books available from NRC Publications along with reprints from past issues of DX News and DX Audio Service. Send \$1 for our catalog.

To order any of the items mentioned, or for more information, write the NRC at P.O. Box 5711MT, Topeka, KS 66605-0711

Society to Preserve the Engrossing Enjoyment of DXing (SPEEDX)

SPEEDX was founded in 1971 by a group of DXers who wanted an open and accountable club which would cover the entire shortwave spectrum between 2 and 30 MHz. SPEEDX was one of the first clubs to introduce offset, magazine-style printing to its bulletin. SPEEDX has always been run by an elected Board of

Directors which is elected by full (contributing) members. Elections are held every two years and any SPEEDX member is eligible to run for office and to vote. DXers who join SPEEDX but don't contribute to our pages are called "associate members." Everybody is welcome to enjoy the club and publication.

SPEEDX covers SWBC in five logging columns divided by geographical area (Western Hemisphere, Europe, USSR, Africa, and Asia/Oceania). The SPEEDX Utility World column includes loggings and info on this interesting facet of radio listening. Other columns include QSL Report; DX Montage; an up-to-date listing of English broadcasts to North America; and various specialized, topical, and humorous columns which appear on an occasional or rotating basis. A primary goal of SPEEDX is to offer as much reading material as we can. Another goal is to live up to our belief that DXing, above all, should be fun!

To receive a sample copy of the SPEEDX bulletin, send \$1 to SPEEDX, P.O. Box 196-MT, Dubois, PA 15801-0196.

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Region: Ohio and surrounding states
Interests: VHF/UHF and some HF and amateur coverage
Publication: American Scannergram

Club Address: 30 Becontree Bay
Winnipeg, Manitoba, R2N 2X9
Canada
Phone: (204) 253-8644
Region: Manitoba
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Club Name: American SW Listener's Club

Contact: Stewart MacKenzie, WDX6AA
Club Address: 16182 Ballad Lane
Huntington Beach, CA 92649
Phone: (714) 846-1685
Region: Western US, Pacific, Asia, & Middle East
Interests: SWBC
Publication: SWL

Club Name: Bay Area Scanner Enthusiasts
Contact: Herman Frisch
Club Address: 1465 Portobello Drive
San Jose, CA 95118
Region: San Francisco Bay area
Interests: 30+ MHz
Publication: Listening Post

Club Name: Association of Clandestine Enthusiasts (A.C.E.)

Contact: Kirk Baxter
Club Address: P.O. Box 11201
Shawnee Mission, KS 66207
Region: US, some Europe and Middle East
Interests: Pirate and clandestine
Publication: The A.C.E.

Club Name: Bearcat Radio Club
Contact: Larry Miller
Club Address: Box 360
Wagontown, PA 19376
Phone: 1-800-423-1331
Region: US and Canada
Interests: Scanning only
Publication: National Scanning Report

Club Name: Association of DX Reporters (ADXR)

Contact: Reuben Dagold
Club Address: 7008 Plymouth Rd.
Baltimore, MD 21208
Region: International
Interests: Utilities, ham band, QSLing, MW, LW, and SWBC
Publication: DX Reporter

Club Name: Boston Area DXers
Contact: Paul Graveline
Club Address: 9 Stirling Street
Andover, MA 01810
Phone: (508) 470-1971
Region: 50 mile radius Boston
Interests: SWBC

Club Name: Association of Manitoba DX'ers (AMANDX)

Contact: Shawn Axelrod

Club Name: Canadian Int'l DX Club
Contact: Sheldon Harvey, President
Club Address: 79 Kipps St., Greenfield Pk.,
Quebec, Canada J4V 3B1
Phone: (514) 462-1459
Region: Canada nationwide/membership open to all
Interests: General coverage
Publication: The Messenger

Club Name: Cincinnati Area Monitoring Exchange (MONIX)

Contact: John Vodenik
Phone: (513) 398-5968
Region: SE Indiana, Kentucky, SW Ohio
Interests: SWBC, utility, military, satellites, scanning, BCB

Club Name: DX Club of India

Contact: Navin Patel
Club Address: 809, M.G. Road, 1-Dutt Niwas
Mulund, Bombay-400 080, India
Region: India
Interests: SW DXing

Club Name: Metro Radio System

Contact: Julian Olansky
Club Address: P.O. Box 26
Newton Highlands, MA 02161
Phone: (617) 969-3000
Region: New England states
Interests: Public Safety
Publication: M.R.S. Newsletter

Club Name: Michigan Area Radio Enthusiasts

Contact: Bob Walker
Club Address: P.O. Box 311
Wixom, MI 48393
Region: Michigan & surrounding
Interests: All bands
Publication: Great Lakes Monitor

Club Name: Monitor Communications Group

Contact: Louis Campagna, Operations Mgr.
Club Address: 8001 Castor Avenue, #143
Philadelphia, PA 19152-2701
Region: 35 mile radius of Philadelphia
Interests: Various types of communications

New Additions:

Club Name: Decalco Mania
Contact: Paul Richards
Club Address: P.O. Box 126
Lincroft, NJ 07738
Region: (206) 356-3927 (Phil)
Interests: Collecting radio related items

Club Name: Int'l Radio Club of America (IRCA)

Contact: Ralph Sanserino
Club Address: 9705 Mary NW
Seattle, WA 98117
Region: Worldwide
Interests: BCB/AM DX
Publication: DX Monitor

Club Name: Pacific NW/BC DX Club (PNBCDXC)

Contact: Phil Bytheway
Club Address: 9705 Mary NW
Seattle, WA 98117
Phone: (206) 356-3927
Region: WA, OR, ID, BC
Interests: DXing all bands

Club Name: Radio Monitors of Maryland

Contact: Ron Bruckman
Club Address: P.O. Box 394
Hampstead, MD 21074
Region: Maryland
Interests: VHF/UHF/HF utilities

Let's Start A Club:

Guy Chouinard, Jr.
94 Emerald Acres
Barrington, NH 03825
SWBC

SPECIAL EVENT CALENDAR

Date	Location	Club/Contact Person
Mar 1	Yonkers, NY	WECA Fest '92/Sarah Wilson, N2EYX 3478 Russel Pl., Yorktown HTS, NY 10598, (914)962-7279 Location: Yonkers Raceway, 9AM-2PM, \$5 admission.
Mar 1	York, PA	Keystone ARC, et.al. Hamfest/John Shaffer, W3SST 2596 Church Road, York, PA 17404
Mar 7	Absecon, NJ	Shore Points ARC/SPARC P.O. Box 142, Absecon, NJ 08201 Location: Holy Spirit H.S., RT 9, approx 1/2 mile south of RT 30. \$4 admission. Talk-in: 146.385/985.
Mar 7	Cave City, KY	Mammoth Cave ARC Hamfest/Larry Brumett, KN4IV, 108 Withers St., Glasgow, KY 42141
Mar 7-8	Charlotte, NC	1992 Charlotte Hamfest PO Box 221136, Charlotte, NC 28222-1186 Location: Charlotte Merchandise Mart, 2500 E. Independence Blvd. Liberty Hall. Saturday 9AM-5PM, Sunday 9AM-2PM Preregistration \$6; at the door \$8. Talk in on 144.69-145.29
Mar 10-16	OSCAR	DXpedition/contact Jim Kelly, KK3K, (215)978-5272 or Don Bledsoe, WB6LYI, (310)494-6765 DXpedition is from VP2E Anguilla and VP2V British West Indies
Mar 14	Flemington, NJ	Flemington Hamfest/Marty Grozinski, NS2K c/o CRA II Inc., P.O. Box 308, Quakertown, NJ 08868, (908)806-6944 Location: Hunterdon Center Regional HS Field House, RT 31 & 523 8AM to 2PM, \$5 admission, talk-in on 147.375+ Don Bledsoe, WB6LYI, (310) 494-6765.
Mar 15	Maumee, OH	Toledo Mobile Radio Assoc./Chuck Krukowski 9408 Salisbury, Monclova, OH 43542
Mar 22	Jefferson, WI	Tri-County ARC/TCARC, W9MQB, 213 Frederick, Fort Atkinson, WI 53538. Location: Jefferson County Fairgrounds, Hwy 18 West
April 4-5	Spokane, WA	Spokane Radio Amateurs, Inc./Warren Kelsey, N7KYH S1405 Crestine, Spokane, WA 99203
April 4-5	N. Little Rock, AR	Delta Division Convention/Elisha Dixon, N5QCH 1723 N. Augusta, N. Little Rock, AR 72114
April 10-12	Visalia, CA	International DX Convention/Rick Samoian 5302 Cedarlawn Dr., Placentia, CA 92670
April 12	Rockford, IL	Rockford ARA/Clayton DeWitt, N9HUB 1137 Roxbury Rd., Rockford, IL 61107
April 24-26	Dayton, OH	Dayton Hamvention/Bill Schmid, WD8LOI PO Box 964, Dayton, OH 45401

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Don Bell WA2YQY, Box 79C RR01, Melrose, NY 12121-9723.

Volunteers Wanted for Product Evaluation

Robert Bellville is looking for volunteers to evaluate a new tone activated alerting device, which mutes the speaker until a unique DTMF touch-tone is received which activates it. The device will be applicable to those involved in CB, amateur, GMRS, and marine radio, volunteer fire departments, community crime watches, paging, etc.

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- 1) A transmitter and receiver capable of receiving the transmitter frequency.
- 2) A DTMF telephone dialer (for example, Radio Shack 43-139) or DTMF microphone or touch-tone telephone capable of sending tones through a microphone.
- 3) An external speaker or the soldering skills to connect the device to the internal speaker.

In return for prompt and truthful reporting on the questionnaire, the unit will be yours, plus a discount toward future purchases of the device.

If interested as a volunteer please write Robert Bellville, P.O. Box 892-MT, Northboro, MA 01532-0892. If you are interested in the final product you may request to be placed on the mailing list.

INDEX OF ADVERTISERS

Ace Communications	101
Advanced Electronics Applications	17
Advanced Electronic Technologies	43
AIE Corporation	3, 95
Antique Radio Classified	45
ARRL	7
Ashton ITC	79
Austin Antenna	9
Automotive Security & Accessories	95
Cellular Security Group	41
Chilton Pacific	3
Communications Electronics	13
Consumertronics	19
Conversion Research	45
CQ Communications	79
Datametrics	99
Delta Research	49
R.L. Drake Company	11
DX Radio Supply	67, 103
EDE	25
Future Scanning Systems	25
Galaxy Electronics	51
GRE America	67
Grove Enterprises	27, 53, 69, 97
Glenn Hauser	107
Hunterdon Aero Publishers	25
ICOM America	Cover IV
Intercepts Newsletter	19
J&J Enterprises	19
Japan Radio Company	21
KIWA	19
Klingenfuss	37
Lakeview	45
Lentini Communications	59
LJ Electronic Industries	101
MilSpec Communications	99
Monitoring Times	56, 57, 87
Motron Electronics	43
National Scanning Report	3
OptoElectronics	Cover II, III
Palomar Engineering	47
Pioneer Data	63
QSL Prints	103
Radio Accessories	59
Radio Electronics	91
RDI White Papers	95
Renaissance Development	11
Satellite TV Sourcebook	47
Satman	47
Scanner World	39
Skyvision	107
Software Systems Consulting	11, 103
Somerset Electronics	23
Spec-Com	15
SWL Swapper	103
Telcom	105
Tiare Publications	51
TRS Consultants	59
Turbo Electronics	47
Universal Radio	79
V-Comm	95
WI-COMM	63
World Com Technology	59

CAVEAT

Readers are cautioned against ordering from former MT advertiser Intercept, Inc., of 6014 Oak Hill Dr., Flowery Branch, GA 30542. This company is not responding to phone calls or other efforts to contact them, is not fulfilling orders, and is not paying creditors.

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DX Radio Tests

The following are "special events" arranged as a medium wave DX opportunity for listeners. The first listings were arranged by the Courtesy Program Committee of the National Radio Club. For more information on the NRC and BCB DXing, send \$1 to NRC Membership Center, P.O. Box 118, Poquonock, CT 06064-0118.

KBBS-1450, Buffalo, Wyoming, will conduct a DX test from 0200 to 0400 AM EST on Sunday morning March 1, 1992. This test will contain music, voice, and Morse code ID's. Our thanks to Mr. Glenn Swiderski. Please direct your reports to Glenn at P.O. Box 153, Buffalo, WY 82834.

WZAO-1370, P.O. Box 134, Glen Dale, West Virginia, 26038-1730, will conduct a DX test from 0530 to 0600 EST on Sunday morning, March 8, 1992. This test will consist of test tones, voice, and

Morse code ID's. Our thanks to Michael E. Dunn, General Mgr. for this test.

The following tests were arranged by J.D. Stephens for the International Radio Club of America (IRCA), 11300 Magnolia, #43, Riverside, CA 92505, USA. For a sample issue of DX Monitor, please enclose \$1 or 3 IRCs.

Monday, March 2, 1992, **KXOL-1320**, Clinton, Oklahoma, will conduct a DX test from 1:30 to 2:00 AM EST. The test will include tones and Morse code ID's. Reception reports may be sent to: Mr. Dennis Burton, KXOL-AM, 1730 Neptune Dr., Clinton, OK 73601.

Monday, March 2, 1992, **WRIX-1020**, Anderson, South Carolina, will conduct a DX test from 2:00 to 3:00 AM EST. The test will include Morse code ID's and southern gospel music. Reception reports go to: Mr. John Woodson, Program Director, WRIX-AM, Watson Village, Anderson, SC 29624.

Monday, March 9, 1992, **KMTI-650**, Mantli, Utah, will run a DX test from 2:30 to 3:00 AM EST. The test will include tones, Morse code ID's and march music. Power will be 10 kW. Reception reports go to: Mr. Douglas Barton, General Mgr., KMTI-AM, P.O. Box K, Mantli, UT 84642.

Monday, March 9, 1992, **KTNS-1090**, Oakhurst, California, will conduct a DX test from 3:00 to 4:00 AM EST. The test will include voice ID's, Morse code ID's and march music. Reception reports go to: Mr. Larry Gamble, Owner/General Mgr., KTNS-AM, 40356 Oak Park Way, Oakhurst, CA 93644.

Monday, March 16, 1992, **WKTb-1000**, Hemingway, South Carolina, will conduct a special DX test from 2:00 to 3:00 AM EST. The test will include tones and Morse code ID's. The power will be 10 kW. **WLUP-1000 IN CHICAGO, IL, WILL BE OFF THE AIR AT THIS TIME.** Reception reports may be sent to: Mr. Mike Holt, Station Mgr., (W4DCD), WKTb-AM, P.O. Box 1006, Hemingway, SC 29554.

Monday, March 16, 1992, **WCIL-1020**, Carbondale, Illinois, will conduct a DX test from 3:00 to 3:30 AM EST. The test will include voice ID's, Morse code ID's and march music. Reception reports may be sent to: Mr. Rich Bird, Program Director, WCIL-AM, P.O. Box 700, Carbondale, IL 62903-0700.

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Some Good News from New Jersey — And Some Bad News from the Senate

For many years one of the most repressive scanner laws in the country blighted scanner-equipped drivers in New Jersey, including residents of other states who innocently crossed the line.

Drivers suspected of having scanners capable of monitoring public safety transmissions were routinely stopped and, if a scanner was found, arrested and convicted of a fourth-degree crime.

On January 20, 1992, Governor James J. Florio signed a new law, effectively repealing the long-standing prohibition and permitting anyone to carry a public safety scanner in a vehicle, just so long as the information acquired is not used for unlawful purpose.



This is enlightened legislation. It speaks well for the legislators of New Jersey who had the unanimous resolve to expunge a bad law.

We can take pride in this example of democracy in action, an illustration of how public reaction can influence our legislators.

A special thanks is extended to radio attorney Frank Terranella whose successful bid for reform paved the way for New Jersey's scanner bill being struck down.

We have won a battle, but not the war. Soon the Senate will vote on the odious Cellular Amendment to the FCC Funding Bill, prohibiting all future scanners from having cellular frequencies (see *MT* November 1991, P. 112).

This self-serving amendment was contrived and lobbied for by the prosperous Cellular Telecommunications Industry Association so that they may ignore their responsibility to provide privacy protection for their customers.

If you haven't done so, now is your last opportunity to write or call your state senator and urge him to oppose Section 9 (the Cellular Amendment) to the FCC Funding Bill.

By this time it may be too late; but if you don't act now, it WILL be too late.

Bob Grove
Publisher

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